Choose the Correct Answer:

1. The S.S. of the equation : $x^2 = 9$ in $\mathbb{N}$ is .....
(a) $\varnothing$ (b) $\{-3\}$ (c) $\{3\}$ (d) $\{-3, 3\}$

2. If $x^3 y^{-3} = 8$, then $\frac{y}{x}$ = ...
(a) $\frac{1}{512}$ (b) $\frac{1}{8}$ (c) $\frac{1}{2}$ (d) 2

3. The S.S. of the equation : $x^2 - x = 0$ is ..... where $x \in \mathbb{R}$
(a) $\{0\}$ (b) $\varnothing$ (c) $\{0, 1\}$ (d) $\{1\}$

4. The S.S. of the equation : $x^2 - 5x + 6 = 0$ is ..... where $x \in \mathbb{R}$
(a) $\{1, 6\}$ (b) $\{-1, -6\}$ (c) $\{2, 3\}$ (d) $\{-3, -2\}$

5. The solution set of the equation : $x^2 + 25 = 0$ in $\mathbb{R}$ is .....
(a) $\{-5, 5\}$ (b) $\{5\}$ (c) $\{-5\}$ (d) $\varnothing$

6. If $\left(\frac{5}{3}\right)^x = \left(\frac{3}{5}\right)^2$, then x = ...
(a) -2 (b) 2 (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$

7. If $6^x = 7$, then 6^{x+1} = ...
(a) 42 (b) $\frac{7}{6}$ (c) 1 (d) 6

8. $4^3 + 4^3 + 4^3 + 4^3$ = ...
(a) 4^{12} (b) 4^9 (c) 4^4 (d) 4^{81}

9. The solution set of equation : $x^2 - 5x + 4 = 0$ in $\mathbb{R}$ is .....
(a) $\{1, 4\}$ (b) $\{2, -2\}$ (c) $\varnothing$ (d) $\{1\}$

10. $3^{\text{zero}} + 3^{-1} - \left(\frac{1}{\sqrt{3}}\right)^2$ = ...
(a) 3 (b) 1 (c) $\frac{1}{3}$ (d) 0

11. ✱ If $x + y = 3$, $x^2 - xy + y^2 = 5$, then $x^3 + y^3$ = ...
(a) 15 (b) 25 (c) 8 (d) 7

12. If $(x - 2)^0 = 1$, then $x \neq$ .....
(a) 3 (b) 2 (c) 1 (d) –3

13. If $5^x = 4$, then 5^{x-1} = ...
(a) 1.25 (b) 0.8 (c) 0.125 (d) 0.08

14. If $x = \frac{\sqrt{8}}{\sqrt{2}}$, then x^{-1} = ...
(a) 2 (b) -2 (c) $\frac{1}{2}$ (d) $\frac{-1}{2}$

15. $\left(\frac{\sqrt{5}}{3}\right)^{-2}$ = ...

(a) $\frac{9}{5}$ (b) $-\frac{9}{5}$ (c) $-\frac{5}{9}$ (d) $\frac{5}{9}$

16. If $3^x + 3^x + 3^x = 1$, then x = ...

(a) -1 (b) 0 (c) 1 (d) 2

17. $2^{12} \times 3^{12}$ = ...

(a) 6^2 (b) 6^4 (c) 6^{12} (d) 6^{24}

18. 3^{-2} equals .....

(a) 9 (b) $\frac{1}{9}$ (c) $-\frac{1}{9}$ (d) -9

19. If $7^{x-3} = 5^{x-3}$, then x = ...

(a) 5 (b) 7 (c) 3 (d) 0

Complete:

20. The solution set of the equation : $x^2 - 1 = 8$, where $x \in \mathbb{Z}$ is ..... {3, -3}

21. The S.S. of the equation : $x^2 - 3 = 0$ in $\mathbb{R}$ ..... $\{\pm\sqrt{3}\}$

22. $x^3 -$ ..... = $(x-2)$ (..... $+ 2x + 4$)

23. $(5x - 2y)(25x^2 + 10xy + 4y^2) =$ ..... $125x^3 - 8y^3$

24. The S.S. of the following equation : $(x^2 + 3)(x^3 + 1) = 0$ in $\mathbb{R}$ is ..... {-1}

25. $x^3 - 8 = ($ ..... $-$ ..... $)(x^2 + 2x +$ ..... $)$

26. $(a + b)x + (a + b)y = (a +$ ..... $)($ ..... $+$ ..... $)$

27. Fifth the number 5^{20} is .....

28. If $3^x = 5$, then $(27)^x$ = ...

29. The solution set of the equation : $x^2 + 1 = 0$ in $\mathbb{R}$ is .....

30. If $x + y = 7$ and $a - 2b = 4$, then the numerical value of the expression :
$a(x + y) - 2b(x + y)$ = ...

31. If $\left(\frac{2}{3}\right)^x = \frac{27}{8}$, then x = ...

32. If $x^3 y^{-3} = 8$, then $\frac{y}{x}$ = ...

33. If $5^{x-2} = 1$, then x = ...

34. The S.S. of the equation : $x^2 - 16 = 0$ in $\mathbb{R}$ is ..... $\{\pm 4\}$

35. The number $(\sqrt{2})^{-4}$ in simplest form is ..... $\frac{1}{4}$

36. If $x = (\sqrt{5}-2)^7$ and $y = (\sqrt{5}+2)^7$, then xy = ... 1

37. If $x = 3$ is a solution of the equation : $x^2 + 2x + k = 0$, then k = ... -15

38. The solution set of the equation : $x^2 + 4 = 0$ in $\mathbb{R}$ is ..... $\varnothing$

39. If $3^{x-2} = 27$, then x = ... 5

40. $(\frac{3}{5})^x = \frac{27}{125}$, then x = ... -3

41. If $3^x = 81$, then x = ... 4

42. The age of a man now x years, then his age 7 years ago is $x-7$ years.

Choose the Correct Answer:

43. A rhombus whose diagonals lengths are 6 cm., 10 cm. has area ..... cm^2
(a) 60 (b) 30 (c) 15 (d) 10

44. The ratio between the lengths of two corresponding sides of two similar polygons is 3 : 5, then the ratio between their perimeters is .....
(a) 2 : 5 (b) 5 : 3 (c) 3 : 5 (d) 1 : 2

45. If the area of a trapezium is 100 cm^2 and its height is 5 cm., then the length of its middle base = ... cm.
(a) 20 (b) 30 (c) 40 (d) 50

46. If two polygons are similar and the ratio between the lengths of two corresponding sides is 1 : 3 and the perimeter of the smaller polygon is 15 cm., then the perimeter of the greater polygon is ..... cm.
(a) 30 (b) 45 (c) 60 (d) 75

47. A square of perimeter 20 cm., then its area equals ..... cm^2
(a) 20 (b) 25 (c) 50 (d) 100

48. All ..... are similar.
(a) squares (b) triangles (c) rectangles (d) parallelograms

49. A square of diagonal length 12 cm., then its area = ... cm^2
(a) 24 (b) 36 (c) 48 (d) 72

50. If $\Delta ABC \sim \Delta XYZ$, $m(\angle B) = 50°$, then $m(\angle Y) =$ .....

(a) 30° (b) 40° (c) 50° (d) 60°

51. If the ratio between the length of two corresponding sides in two similar triangles is equal to 1 , then the two triangles are .....

(a) congruent. (b) different. (c) parallel. (d) otherwise.

52. If the ratio of enlargement between two similar triangles equals ..... , then the two triangles are congruent.

(a) 1 (b) 2 (c) 0.5 (d) 0.25

53. If $\Delta ABC \sim \Delta DEO$, $AB = \frac{1}{3} DE$, then the perimeter of ΔABC equals ..... the perimeter of ΔDEO

(a) $\frac{1}{3}$ (b) $\frac{1}{2}$ (c) 3 (d) 9

54. Trapezium of length of its middle base 8 cm. and surface area 56 cm^2 , then its height = ... cm.

(a) 32 (b) 24 (c) 448 (d) 7

55. The area of the trapezium whose middle bases 7 cm. , and height 6 cm. = ... cm^2

(a) 21 (b) 42 (c) 40 (d) 13

Complete:

56. A trapezium whose bases lengths are 8 cm. , 10 cm. and its height is 5 cm. , then its area equals ..... cm^2

57. The two polygons are similar if their corresponding sides are ..... and their corresponding angles are .....

58. The area of a rhombus is 24 cm^2 , the length of one of its diagonals is 8 cm. , then the length of the other diagonal is .....

59. The square whose length of its diagonal 8 cm. , then its area = ... cm^2

60. If $\Delta ABC \sim \Delta XYZ$, $m(\angle A) + m(\angle B) = 60°$, then $m(\angle Z) =$ .....

61. The area of the trapezium whose parallel bases 6 cm. , 10 cm. and height 5 cm. equals .....

62. The two polygons are similar to a third are .....

63. The area of rhombus whose perimeter is 20 cm. and height 4 cm. = ...

64. The diagonal of a square whose area 50 cm^2 equals ..... cm.

65. A square of diagonal length 12 cm. , then its area = ... cm^2

Mr. Rami shaw2y 01099899221 / 01113525948

Prep 2 April revision

First algebra

Ex: Choose the correct answer from those given:

1) If $8X^3 + a^3 = (2X + a)(4X^2 - 4aX + a^2)$ then a equals .....

a)7 b) 14 c) 49 d) 343

2) If $X^3 + 27 = (X + 3)(X^2 + K + 9)$ then K equals .....

a) -6X b) -3X c) 3X d) 6X

3) If $X^3 - Y^3 = 26$, $X^2 + XY + Y^2 = 13$ then X – Y = ...

a) 2 b) 4 c) 13 d) 39

4) The S.S. the equation $x(x - 2) = 0$ in R is .....

a) {0} b) {0 , -2} c) {0 , 2} d) {2}

5) The S.S. of the equation $3(x - 2)(x + 5) = 0$ in R is .....

a) {0 , 2 , -5} b) {3 , 2 , -5} c) {2 , -5} d) {-2 , 5}

6) The S.S. of the equation $x^2 - 4 = 0$ in R is .....

a) {4} b) {4 , -4} c) {2} d) {2 , -2}

7) The S.S. of the equation $x^2 + 25 = 0$ in R is .....

a) {5} b) {5 , -5} c) {-5} d) ∅

8) The S.S. of the equation $(x - 4)^2 = 0$ in R is .....

a) {4} b) {0 , 4} c) {0 , -4} d) {-4}

9) The S.S. of the equation $x(x - 2) = 5x$ in R is .....

a){3} b) {0 , 3 , 5} c) {3 , 5} d) {0 , 8}

10) The S.S. of the equation $\frac{4}{x} = \frac{x}{9}$ in R is .....

a) {4 , 9} b) {6 , -6} c) {6} d) {36}

11) The equation whose roots are 3 and 5 is ……

a) $5x^2 + 8x + 3 = 0$ b) $2x^2 + 8x - 15 = 0$

c) $x^2 - 8x + 15 = 0$ d) $3x^2 + 8x + 5 = 0$

12) If $(x+2)^0 = 1$, then x ∈ …… (R- {2} , R- {-2} , {2} , R)

13) $5^6 + 5^6 + 5^6 + 5^6 + 5^6$= …… $(5^8 , 5^9 , 5^{30}, 5^7)$

14) If x = $\frac{\sqrt{16}}{\sqrt{4}}$, then x^{-1} = …… $(\frac{\sqrt{4}}{2}, \frac{1}{\sqrt{4}}, 4 , 2)$

15) 0.0025 x 0.000004 = …… $(10^{-8} , 10^{-9} , 10^8, 10^9)$

16) $\frac{1}{12}$ of the number : $4^6 \times 3^6$ = …… $(12^7 , 12^5 , 12^{11} , 12^{36})$

17) If $5^x = 4$,then 5^{x-1} = …… (1.25 , 0.8 , 0.125 , 0.08)

18) If $3^x = 12$, then 3^{x-2} = …… $(\frac{3}{4} , \frac{4}{3} , \frac{2}{3} , \frac{3}{2})$

19) If $3^x = 5$, $\frac{1}{3^y} = 7$, then : 3^{x+y}= …… $(\frac{5}{7} , \frac{7}{5} , 2 , 12)$

20) If $6^x = 11$ then 6^{x+1} =……. (12 , 22 , 66 , 72)

21) $(\sqrt{8} + \sqrt{7})^9 (\sqrt{8} - \sqrt{7})^9$ = …… (1 , $\sqrt{15}$, 7 , 5)

22) $(5^{x+2} - 5^{x+1}) \div 5^x$ = …… (5 , 10 , 15 , 20)

23) Which is nearer to the value of $(12^2 + 8^2)$

(140 + 16 , 24 + 16 , 140 + 60 , 122 + 82)

24) if $(\sqrt{3})^{x-1} = 3\sqrt{3}$,then x = …… (1 , 2 , 3 , 4)

25) If $2^{x-1} \times 3^{1-x} = \frac{9}{4}$, then x = …… (-3 , -1 , 1 , 3)

26) The value of (x) which satisfy the equation: $2^x + 2^{x+1} = \frac{3}{2}$ is ……

(-2 , -1 , 1 , 2)

27) The value of: $(3)^{40} + (3)^{42}$= …….

$(4 \times 3^{40} , 4 \times 3^{42} , 10 \times 3^{42} , 10 \times 3^{40})$

28) The value of: $3^0 + (\frac{-1}{\sqrt{2}})^2 + (\frac{1}{\sqrt[3]{-8}}) =$ ..... $(0 , \frac{1}{2} , 1 , \frac{1}{4})$

29) The value of: $3^6 + (\sqrt{3})^{12} + (\sqrt{9})^6 =$ .....

$(3^{18} , 3^7 , (\sqrt{3})^{18}, (\sqrt{3})^{24})$

30) The value of: $\frac{3^x \times 3^x \times 3^x}{3^x + 3^x + 3^x}$ = ... $(3^{2x-1} , 3^{1-2x}, 3^{x^3-3x}, 3^{3x-x^3})$

31) The value of: $\frac{2^{2n+1} \times 5^{2n+1}}{10^{2n}}$ = ... $(\frac{1}{10} , 7 , 10 , 100)$

32) If $x \neq 0$, $x + \frac{1}{x} = \sqrt{3}$, then $x^2 + \frac{1}{x^2}$ =..... (1 , 3 , 5 , 7 , 9)

33) $(a - 1)(a^2 + a + 1)$ equals ..... a) $a^3 - 1$ b) $a^3 + 1$ c) $(a - 1)^3$ d) $1 - a^3$

34) if 2 is a solution for the equation X^2-5x+a=0 then a =....

a)-3 b)-6 c)3 d)6

35) if four times a number is 48 then one third of this number equal....

a)4 b)8 c)12d)16

36) the S.S. of the equation $(x-1)^2 = 0$ is ... a){0} b){-1} c){1,-1} d){1}

37) the dimension of a rectangle are xcm ,x+1cm and its area is $30cm^2$then x=....

a)3 b)4 c)5 d)6

38) if the age of zyad now is x years then his age before three years was.....

a)3x b)3-x c)x-3 d)x+3

39) the area of a rectangle whose length x+y and its width x-y is .....

a)2x b)4x c) $X^2 - Y^2$ d)$(x-y)^2$

40) a natural number if we divide it by each of the numbers 2,3,4 then the reminder is 1 but if divide by 5 there is no reminder ,then this number is ....

a)13 b)15 c)25 d)35

41) 3^{-2} equals ..... a) -9 b)$-\frac{1}{9}$ c)$\frac{1}{9}$ d) 9

42) 0.002 × 0.05 equals ..... a) 10^{-5} b) 10^{-4} c) 10^4 d) 10^5

43) The value of the expression $2^{20} + 2^{21}$ equals ……

a)2×2^{40} b) 2×2^{41} c) 3×2^{20} d) 3×2^{21}

44) One sixth of the number: $2^{12} \times 3^{12}$ is …… a) 6^2 b) 6^4 c) 6^{11} d) 6^{23}

45) The value of the expression: $2^5 + (\sqrt{2})^{10}$ equals …. a) 2^6 b) 2^{10} c) $(\sqrt{2})^{15}$ d) $(\sqrt{2})^{20}$

46) $4^3 + 4^3 + 4^3 + 4^3$ equals …… a) 4^3 b) 4^4 c) 4^{12} d) 4^{81}

47) $(\frac{\sqrt{5}}{3})^{-2}$ equals …… a)$-\frac{9}{5}$ b)$-\frac{5}{9}$ c)$\frac{5}{9}$ d)$\frac{9}{5}$

48) If x = $\frac{\sqrt{9}}{\sqrt{3}}$ then x^{-1} equals:…… a)$\frac{\sqrt{3}}{3}$ b)$\frac{\sqrt{3}}{\sqrt{2}}$ c)$\sqrt{3}$ d) 2

49) If $6^x = 7$ then 6^{x+1} equals …… a) 8 b) 13 c) 36 d) 42

50) If $3^x = 5$ then $(27)^3$ equals …… a) 9 b) 25 c) 125 d) 729

51) If $5^x = 4$ then 5^{x-1} equals …… a) 1.25 b) 0.8 c) 0.125 d) 0.08

52) If $9^{8-2x} = 1$ then x equals …… a) zero b)$\frac{1}{4}$ c) 4 d) 6

53) If $(x - 5)^0 = 1$ then x∈ …… a) R - {5} b) R - {-5} c) {5} d) R

54) If $5^{x-3} = 1$, then $(2x)^2$ equals …… a) 36 b) 9 c) 4 d) 3

55) $(\sqrt{3} + \sqrt{2})^9 (\sqrt{3} - \sqrt{2})^9$ equals ……a) 1 b) $\sqrt{5}$ c) $\sqrt{6}$ d) 5

56) If $3^x = 5$, $\frac{1}{3^y} = 7$ then 3^{x+y}= …… a)$\frac{5}{7}$ b)$\frac{7}{5}$ c) 2 d) 12

57) If $2^{x-1} \times 3^{1-x} = \frac{9}{4}$ then x = …… a) - 3 b) - 1 c) 1 d) 3

58) The numerical value of the expression $\frac{2^{2n+1} \times 5^{2n+1}}{10^{2n}}$ is…

a)$\frac{1}{10}$ b) 7 c) 10 d) 100

59) The expression: $(5^{x+2} - 5^{x+1}) \div 5^x$=….. a) 5 b) 10 c) 15 d) 20

60) The expression:$\frac{3^x \times 3^x \times 3^x}{3^x + 3^x + 3^x}$=…… a) 3^{2x-1} b) 3^{1-2x} c) 3^{x^3-3x} d) 3^3

Geometry

Choose the correct answer:

1) If the perimeter of a rhombus is 24cm and its area = 30cm^2 then its height =….. a)4cm b) 5cm c) 6cm d) 12cm

2) If the product of the lengths of the diagonals of a rhombus= 96cm^2 and its height is 6cm, then its side length =… a) 12cm b) 8cm c) 6cm d) 4cm

3) The area of the square whose side length is 6cm ……..the area of the square whose diagonal length is 8cm. a) < b) > c) =

4) A square whose area 200cm^2 then its diagonal = ……..cm.

a)25cm b) 5cm c) 10cm d) 20cm

5) If the area of a square is 50cm^2, then the length of its diagonal =…….

a)25cm b) 5cm c) 10cm d) 20cm

6) The trapezium in which the length of its two parallel bases are 15cm, and11cm its middle base is with length……

a) 26cm b) 15cm c) 13cm d) 11cm

7) The trapezium whose middle base length is x cm, and its height =$\frac{1}{2}$ the length of the middle base , its area = ……..cm^2. a) x^2 b) $\frac{x^2}{2}$ c) $\frac{x^2}{4}$ d) $\frac{x^2}{8}$

8) the ratio of enlargement between two similar triangle may equal……

a)1b)2c)0.5d)0.25

9) In any two similar polygons their corresponding angles are …… in measure. a)equal b)difference c)proportional d)alternatives

10) The perpendicular segment drawn from the right angle of a triangle to the hypotenuse divides it to two …… triangles.
a)obtuse angle b) acute angle c) equal's sides triangle d) similar

11) The area of a rhombus is $20cm^2$, the length of one of its diagonals is 5cm, then the length of the other diagonal =……

a) 8cm b) 4cm c) 10cm d) 15cm

12) The area of trapezium whose middle base length is 10 cm and height 8cm equals …… cm^2. a) 80 b) 60 c) 40 d) 20

13) If ΔABC ~ ΔDEO, AB = $\frac{1}{4}$ DE then the Perimeter of ΔABC equals …….. the perimeter of ΔDEO a)4 b)2 c)$\frac{1}{2}$ d)$\frac{1}{4}$

14) The quadrilateral whose area equals half square of its diagonal is …… a)parallelogram b) rectangle c) rhombus d) square

15) The diagonals of an isosceles trapezium ……..

a)congruent b) perpendicular c) bisect each other d) parallel

16) The area of rhombus whose diagonals length are 6cm, 8cm equals…… a)2 cm^2 b) 14 cm^2 d) 24 cm^2 d) 48 cm^2

17) The quadrilateral whose area equals the square of its side length is …….. a)parallelogram b) rectangle c) rhombus d) square

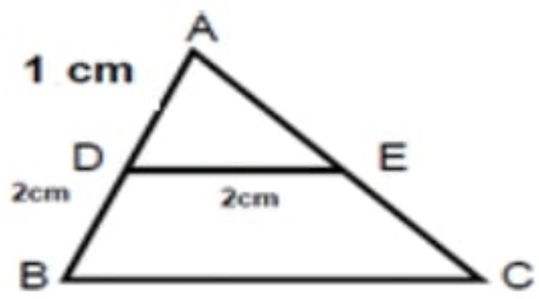
18) The side length of a square whose area equals the area of parallelogram of base length 8cm and corresponding height 4.5 cm equals…. a)6 cm b) 13 cm c) 18 cm d) 36 cm

19) If the area of a rhombus is 24 cm^2 and the length of one of its diagonal is 6 cm then the length of the other diagonal is …….

a) 4 cm b) 8 cm c) 10 cm d) 12 cm

20) If ΔADE~ΔABC then the length of BC = ……. .

a. a)3 b)4 c)6 d)8



1	$a X + a y + X + y = (X + y) (\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots)$ A) a + 1 B) a + 2 C) a + 3 D) a – 1	
2	$X^4 + 64 = (X^2 + 8)^2 - \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$ A) $12 X^2$ B) $14 X^2$ C) $16 X^2$ D) $18 X^2$	
3	If : (X – 2y + 3 z) = 5 , then (X + 3z) (X – 2y + 3z) – 2y (X – 2y + 3z) = …… A) 4 B) 9 C) 16 D) 25	
4	$X^4 + 81 = (X^2 + 9)^2 - \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$ A) $12 X^2$ B) $14 X^2$ C) $16 X^2$ D) $18 X^2$	
6	$a X + a y + 2 X + 2 y = (X + y) (\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots)$ A) a + 1 B) a + 2 C) a + 3 D) a – 1	
8	If : (X + 2) is a factor of : $X^2 + 5 X + 6$, then the other factor is …… A) X + 4 B) X – 5 C) X + 3 D) X – 6	
9	$9 X^2 + 30 X + 25 = \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$ A) $(2 X - 3)^2$ B) $(2 X - 5)^2$ C) $(3 X + 2)^2$ D) $(3 X + 5)^2$	
10	The middle term of the expression $(X + 5)^2$: …… A) 24 X B) 10 X C) 20 X D) 12 X	
11	$a^2 + 2 a b + b^2 = 25$, then a + b = …… A) ± 3 B) ± 4 C) ± 5 D) ± 6	
12	If : (X – 2) is a factor of : $X^2 - 7 X + 10$, then the other factor is …… A) X + 4 B) X – 5 C) X + 3 D) X – 6	
13	$(X + y) (X^2 - X y + y^2) = \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$ A) $X^3 - y^3$ B) $X^3 + y^3$ C) $8 X^3 - y^3$ D) $X^3 - 27 y^3$	
14	If : $X^3 - y^3 = 14$, and $X^2 - X y + y^2 = 7$, then : X – y = …… A) 2 B) 3 C) 4 D) 5	
15	If : X + y = 4 and $X^2 - X y + y^2 = 5$, then : $X^3 + y^3$ = …… A) 6 B) 12 C) 18 D) 20	

1 If $5x = 35$, then $2x + 1 =$ .....

(a) 7 (b) 8 (c) 15 (d) 71

2 If $\frac{1}{2}x = 4$, then $2x =$ .....

(a) $\frac{1}{16}$ (b) 4 (c) 8 (d) 16

3 If $\frac{3}{18} = \frac{x}{54}$, then $x =$ .....

(a) 3 (b) 9 (c) 6 (d) 18

4 The S.S of the equation : $x^2 + 4 = 0$, $x \in \mathbb{Q}$ is .....

(a) $\{2\}$ (b) $\{-2\}$ (c) $\{-2, 2\}$ (d) $\varnothing$

5 If $x \in \mathbb{R}$, then the solution set of the equation : $x^2 + 16 = 0$ is .....

(a) $\{4, -4\}$ (b) $\{4\}$ (c) $\{-4\}$ (d) $\varnothing$

6 The S.S. of the equation : $x^2 = 9$ in $\mathbb{N}$ is .....

(a) $\{\varnothing\}$ (b) $\{-3\}$ (c) $\{3\}$ (d) $\{3, -3\}$

7 The solution set of the equation : $x^2 - 25 = 0$ in $\mathbb{R}$ is .....

(a) $\varnothing$ (b) $\{5\}$ (c) $\{5, -5\}$ (d) $\{25\}$

8 The S.S. of the equation : $x^2 - 4 = 0$, $x \in \mathbb{Z}$ is .....

(a) $\{2\}$ (b) $\{-2\}$ (c) $\varnothing$ (d) $\{-2, 2\}$

9 The S.S. of the equation : $x(x - 2) = 0$ in $\mathbb{R}$ is .....

(a) $\{0\}$ (b) $\{2\}$ (c) $\{0, 2\}$ (d) $\{0, -2\}$

10 The solution set of the equation : $(x + 2)(x - 5) = 0$ in $\mathbb{R}$ is .....

(a) $\{-2\}$ (b) $\{-2, 5\}$ (c) $\{0, 5\}$ (d) $\{2, -5\}$

11 The S.S. of the equation : $x^2 - x = 0$ is .....

(a) $\{0\}$ (b) $\varnothing$ (c) $\{0, 1\}$ (d) $\{1\}$

12 The S.S. of the equation : $x^2 - \sqrt{3}x = 0$ in $\mathbb{R}$ is .....

(a) $\{0, \sqrt{3}\}$ (b) $\{0, -\sqrt{3}\}$ (c) $\{0\}$ (d) $\{\sqrt{3}\}$

14 The solution set of the equation : $x^2 - 5x = 0$ in $\mathbb{R}$ is .....

(a) $\varnothing$ (b) $\{5\}$ (c) $\{0, 5\}$ (d) $\{5, -5\}$

15 The S.S. of the equation in $\mathbb{R}$: $x^2 + 4x + 4 = 0$ is .....

(a) $\{2, -2\}$ (b) $\{2\}$ (c) $\{-2\}$ (d) $\{4, 2\}$

16 The S.S. of the equation : $x^2 - 5x + 6 = 0$ is .....

(a) $\{1, 6\}$ (b) $\{-1, -6\}$ (c) $\{2, 3\}$ (d) $\{-3, -2\}$

22 The S.S. of the equation : $x^2 - \sqrt{3}x = 0$ in $\mathbb{R}$ is .....

(a) $\{0, \sqrt{3}\}$ (b) $\{0, -\sqrt{3}\}$ (c) $\{0\}$ (d) $\{\sqrt{3}\}$

28 If $(x + 1)^2 = 1$, then $x \in$ .....

(a) $\{0, 2\}$ (b) $\{0, -2\}$ (c) $\{0\}$ (d) $\varnothing$

29 If 2 is the solution of : $x^2 - 5x + \ell = 0$, then ℓ = ...

(a) -3 (b) -6 (c) 3 (d) 6

30 If Malak age now is x years , then his age after 5 years will be ..... years.

(a) $x + 5$ (b) $x - 5$ (c) $5x$ (d) $5 \div x$

31 If the age of Zyad now is x years , then his age 5 years ago is ..... years.

(a) $5x$ (b) $5 - x$ (c) $x - 5$ (d) $x + 5$

32 If four times a number is 48 , then one third of this number is .....

(a) 4 (b) 8 (c) 12 (d) 9

41 If the age of Ayman 5 years ago was x years , then the square of his age now = ...

(a) $x^2 + 5$ (b) $x^2 + 25$ (c) $(x + 5)^2$ (d) $(x - 5)^2$

42 If the age of Bassim now is x years , then his age 3 years ago was ..... years.

(a) $3x$ (b) $x + 3$ (c) $x - 3$ (d) x^3

43 If the age of Sally 2 years ago was x years , then her age after 3 years from now will be ..... years.

(a) $x + 2$ (b) $x + 3$ (c) $x + 5$ (d) $6x$

44 If the age of Magdy now is x years , then the square of his age after 2 years is .....

(a) $x^2 + 2$ (b) $x^2 + 4$ (c) $(x - 2)^2$ (d) $(x + 2)^2$

45 Three times the square of the number x is .....

(a) $(3x)^2$ (b) $x^2 + 3$ (c) $3x^2$ (d) $\frac{x^2}{3}$

1	$5^2 + 5^2 =$ ..... (a) 10^2 (b) 10^4 (c) 5^4 (d) 50
2	$3^5 \times 2^5 =$ ..... (a) 5^{10} (b) 6^{10} (c) 6^5 (d) 6^{25}
3	$(5\ a)^{zero} =$ ..... , $a \neq 0$ (a) 5 (b) a (c) 5 a (d) 1
4	$3\ x^{zero} =$ ..... , $x \neq 0$ (a) zero (b) 1 (c) 3 (d) $3x$
5	$3^{(2^3)} =$ ..... (a) 3^6 (b) 3^5 (c) 3^8 (d) 3^{32}
6	🕮 $4^3 + 4^3 + 4^3 + 4^3 =$ ..... (a) 4^3 (b) 4^4 (c) 4^{12} (d) 4^{81}
7	The quarter of the number $4^{20} =$ ..... (a) 1^{20} (b) 4^{19} (c) 4^{16} (d) 4^5
8	4 times the number $2^8 =$ ..... (a) 2^{32} (b) 8^8 (c) 2^{10} (d) 4^8
9	$\left(\sqrt{3}\right)^6 \times 3^4 =$ ..... (a) $\left(\sqrt{3}\right)^{24}$ (b) 3^{10} (c) 3^7 (d) $\left(\sqrt{3}\right)^{10}$
10	🕮 The value of : $2^{20} + 2^{21} =$ ..... (a) 2×2^{40} (b) 2×2^{41} (c) 3×2^{20} (d) 3×2^{21}
11	🕮 What of the following is closest to $11^2 + 9^2$? (a) 22 + 18 (b) 211 + 29 (c) 120 + 20 (d) 120 + 80
12	🕮 If $5^x = 4$, then $5^{x-1} =$ ..... (a) 1.25 (b) 0.8 (c) 0.125 (d) 0.08
13	🕮 $0.002 \times 0.05 =$ ..... (a) 10^{-5} (b) 10^{-4} (c) 10^4 (d) 10^5
14	$x^{m-1} \times$ ..... $= 1$, $x \neq 0$ (a) x^{m-1} (b) x^{-m-1} (c) x^{m+1} (d) x^{-m+1}
15	$5 \times 5 \times 5 \times 2 \times 2 \times 2 \times 2 \times 2 = 4 \times$ ..... (a) 5^3 (b) 2^3 (c) 10^3 (d) $5^3 + 2^3$

16 🕮 Sixth the number $2^{12} \times 3^{12}$ is .....

(a) 6^2 (b) 6^4 (c) 6^{11} (d) 6^{23}

17 Fifth the number $\left(\sqrt[3]{5}\right)^6$ is .....

(a) 5 (b) 5^5 (c) 5^6 (d) 5^{12}

18 If $6^x = 11$, then 6^{x+1} = ...

(a) 12 (b) 22 (c) 66 (d) 72

19 $2^{2011} = 2^{2010} +$ .....

(a) 2 (b) 2010 (c) 2^{2010} (d) 2^{2011}

20 🕮 The numerical value of the expression : $\frac{2^{2n+1} \times 5^{2n+1}}{10^{2n}}$ is .....

(a) $\frac{1}{10}$ (b) 7 (c) 10 (d) 100

21 🕮 $\left(\sqrt{3}+\sqrt{2}\right)^9 \left(\sqrt{3}-\sqrt{2}\right)^9$ = ...

(a) 1 (b) $\sqrt{5}$ (c) $\sqrt{6}$ (d) 5

22 🕮 If $x = \frac{\sqrt{9}}{\sqrt{3}}$, then x^{-1} = ...

(a) $\frac{\sqrt{3}}{3}$ (b) $\frac{\sqrt{3}}{\sqrt{2}}$ (c) $\sqrt{3}$ (d) 2

23 If $3^{x+1} = 5^{x+1}$, then x = ...

(a) 4 (b) 3 (c) – 1 (d) 1

24 If $3^{2+x} = 5^{x+2}$, then 7^{x+2} = ...

(a) 7 (b) – 7 (c) – 14 (d) 1

25 If $\left(\frac{2}{3}\right)^9 = \left(\frac{3}{2}\right)^x$, then x = ...

(a) – 9 (b) 9 (c) 32 (d) 23

26 If $5^{|x-3|} = 25$, then x = ...

(a) 5 (b) 2 (c) 1 (d) 5 or 1

27 🕮 If $2^{x-1} \times 3^{1-x} = \frac{9}{4}$, then x = ...

(a) – 3 (b) – 1 (c) 1 (d) 3

28	If $2^{x} = \frac{1}{8}$, then x^{2} = ... (a) $\frac{1}{4}$ (b) 9 (c) -9 (d) $-\frac{1}{9}$	
29	If $2^{x-2} = 2^{1-2x}$, then x = ... (a) 2 (b) $\frac{1}{2}$ (c) 1 (d) zero	
30	If $3^{x} = 9$, then $2^{x} - 1$ = ... (a) 7 (b) 3 (c) 8 (d) 5	

If	Then
A number = x	• Its half = $\frac{1}{2}x$ • Its third = $\frac{1}{3}x$ • Its twice = $2x$ • Its three times = $3x$ • Its square = x^2 • Twice its square = $2x^2$ • Square its double = $(2x)^2 = 4x^2$ • Its additive inverse = $-x$ • Its multiplicative inverse = $\frac{1}{x}$, where $x \neq 0$
Two numbers , one of them exceeds the other by 5 or one of them is less than the other by 5 or their difference = 5	• The first number = x • The second number = $x + 5$
The sum of two numbers equals 5	• The first number = x • The second number = $5 - x$
Two numbers , one of them is more than twice the other by 5	• The first number = x • The second number = $2x + 5$
Three consecutive integers	• The first number = x • The second number = $x + 1$ • The third number = $x + 2$
Three even (or odd) consecutive numbers	• The first number = x • The second number = $x + 2$ • The third number = $x + 4$
Two numbers , the ratio between them is 2 : 3	• The first number = $2x$ • The second number = $3x$
The age of a man now is x years	• His age after 4 years = $x + 4$ • His age 3 years ago = $x - 3$ • The square of his age 6 years ago = $(x - 6)^2$
A rectangle whose length exceeds its width by 5 cm.	• The width = x cm. , the length = $(x + 5)$ cm. • Its perimeter = $(x + x + 5) \times 2 = (4x + 10)$ cm. • Its area = $x(x + 5) = (x^2 + 5x)$ cm^2.
A square of side length = x cm.	• Its perimeter = $4x$ cm. • Its area = x^2 cm^2.

Lesson [4] : Factorizing The Sum And Difference Of Two Cubes

Rule	Rule
$X^3 - Y^3 = (X + Y)(X^2 + XY + X^2)$	$X^3 + Y^3 = (X + Y)(X^2 - XY + X^2)$
Examples	**Examples**
$X^3 - 1 = (X - 1)(X^2 + X + 1)$	$27X^3 + 8 = (3X + 2)(9X^2 - 2X + 4)$
$X^3 - 27 = (X - 3)(X^2 + 3X + 9)$	$8X^3 + 512 = (2X + 8)(4X^2 - 8X + 64)$
$8X^3 - 64 = (2X - 4)(4X^2 + 4X + 16)$	$125X^3 + 216 = (5X + 6)(25X^2 - 6X + 36)$

Exercises

[A] : Choose The Correct Answer : -

[B] Choose the correct : -

1	$(X - 2)(X + 2) =$ ..... A) $X^2 - 4$ B) $X^2 - 9$ C) $X^2 - 25$ D) $X^2 - 36$	
2	$(X - 5)(X + 5) =$ ..... A) $X^2 - 4$ B) $X^2 - 9$ C) $X^2 - 25$ D) $X^2 - 36$	
3	$(X - 4)(X + 4) =$ ..... A) $X^2 - 1$ B) $X^2 - 16$ C) $X^2 - 36$ D) $X^2 - 49$	
4	$X^2 - 4 =$ ..... A) $(X - 1)(X + 1)$ B) $(X - 3)(X + 3)$ C) $(X - 2)(X + 2)$ D) $(X - 4)(X + 4)$	
5	$X^2 - 1 =$ ..... A) $(X - 1)(X + 1)$ B) $(X - 3)(X + 3)$ C) $(X - 2)(X + 2)$ D) $(X - 4)(X + 4)$	

6	$X^2 - 49$ = ... A) $(X-5)(X+5)$ B) $(X-7)(X+7)$ C) $(X-6)(X+6)$ D) $(X-8)(X+8)$	
7	$X^2 - 36$ = ... A) $(X-5)(X+5)$ B) $(X-7)(X+7)$ C) $(X-6)(X+6)$ D) $(X-8)(X+8)$	
8	If : $X^2 - a = (X-5)(X+5)$, then a = ... A) 4 B) 9 C) – 25 D) 25	
9	If : $X^2 - a = (X-3)(X+3)$, then a = ... A) 4 B) 9 C) – 9 D) 25	
10	If : $X^2 + a = (X-5)(X+5)$, then a = ... A) 4 B) 9 C) – 25 D) 25	
11	If : $X^2 + a = (X-3)(X+3)$, then a = ... A) 4 B) 9 C) – 9 D) 25	
12	$(\sqrt{3}+\sqrt{2})^7 (\sqrt{3}-\sqrt{2})^7$ = ... A) 1 B) 32 C) 81 D) 125	
13	$(\sqrt{5}-\sqrt{3})^5 (\sqrt{5}+\sqrt{3})^5$ = ... A) 1 B) 32 C) 81 D) 125	
14	If : $a + b = 5$, $a - b = 4$, then : $a^2 - b^2$ = ... A) 6 B) 8 C) 20 D) 15	
15	If : $a + b = 5$, $a - b = 3$, then : $a^2 - b^2$ = ... A) 6 B) 8 C) 20 D) 15	
16	If : $a + b = 5$, $a - b = 4$, then : $b^2 - a^2$ = ... A) 6 B) 8 C) 20 D) – 20	

17	If : $a + b = 5$, $a - b = 3$, then : $b^2 - a^2$ = ... A) 6 B) 8 C) – 15 D) 15	
18	If : $X^2 - y^2 = 6$ and $X - y = 3$, then $X + y$ = ... A) 2 B) 18 C) 9 D) 5	
19	If : $X^2 - y^2 = 30$ and $X - y = 6$, then $X + y$ = ... A) 2 B) 18 C) 9 D) 5	
20	If : $X^2 - y^2 = 6$ and $X + y = 3$, then $X - y$ = ... A) 2 B) 4 C) 3 D) 6	
21	If : $X^2 - y^2 = 15$ and $X + y = 5$, then $X - y$ = ... A) 2 B) 4 C) 3 D) 6	
22	Area of rectangle whose length is : $X + y$ and its width is $X - y$ is ..... A) $X^2 - y^2$ B) $a^2 - b^2$ C) $b^2 - a^2$ D) $y^2 - X^2$	
23	Area of rectangle whose length is : $a + b$ and its width is $a - b$ is ..... A) $X^2 - y^2$ B) $a^2 - b^2$ C) $b^2 - a^2$ D) $y^2 - X^2$	
24	If : ($X - 1$) is one of the factors of : $X^2 - 1$, then the other factor is ..... A) $X + 1$ B) $X + 2$ C) $X - 3$ D) $X - 5$	
25	If : ($X + 3$) is one of the factors of : $X^2 - 9$, then the other factor is ..... A) $X + 1$ B) $X + 2$ C) $X - 3$ D) $X - 5$	
26	The value of the expression : ($2a + 3b$) ($2a - 3b$) = ... A) $a^2 - b^2$ B) $4a^2 - b^2$ C) $a^2 - 9b^2$ D) $4a^2 - 9b^2$	
27	The value of the expression : ($a + 3b$) ($a - 3b$) = ... A) $a^2 - b^2$ B) $4a^2 - b^2$ C) $a^2 - 9b^2$ D) $4a^2 - 9b^2$	

28 $(55)^2 - (45)^2 = 100 \times$ .....

A) 10 B) 20 C) 30 D) 40

29 $(65)^2 - (35)^2 = 100 \times$ .....

A) 10 B) 20 C) 30 D) 40

30 $X^3 - 1 =$ .....

A) $(X-1)(X^2+X+1)$ B) $(X-3)(X^2+3X+9)$

C) $(X-2)(X^2+2X+4)$ D) $(X-4)(X^2+4X+16)$

31 $125X^3 - 8 =$ .....

A) $(X-1)(X^2+X+1)$ B) $(X-3)(X^2+3X+9)$

C) $(5X-2)(25X^2+2X+4)$ D) $(X-4)(X^2+4X+16)$

32 $X^3 - 512 =$ .....

A) $(X-5)(X^2+5X+25)$ B) $(X-7)(X^2+7X+49)$

C) $(X-6)(X^2+6X+36)$ D) $(X-8)(X^2+8X+64)$

33 $X^3 - 343 =$ .....

A) $(X-5)(X^2+5X+25)$ B) $(X-7)(X^2+7X+49)$

C) $(X-6)(X^2+6X+36)$ D) $(X-8)(X^2+8X+64)$

34 $X^3 + 1 =$ .....

A) $(X+1)(X^2-X+1)$ B) $(X+3)(X^2-3X+9)$

C) $(X+2)(X^2-2X+4)$ D) $(X+4)(X^2-4X+16)$

35 $X^3 + 8 =$ .....

A) $(X+1)(X^2-X+1)$ B) $(X+3)(X^2-3X+9)$

C) $(X+2)(X^2-2X+4)$ D) $(X+4)(X^2-4X+16)$

36	$X^3 + 512$ = ... A) $(X + 5)(X^2 - 5X + 25)$ B) $(X + 7)(X^2 - 7X + 49)$ C) $(X + 6)(X^2 - 6X + 36)$ D) $(X + 8)(X^2 - 8X + 64)$	
37	$X^3 + 343$ = ... A) $(X + 5)(X^2 - 5X + 25)$ B) $(X + 7)(X^2 - 7X + 49)$ C) $(X + 6)(X^2 - 6X + 36)$ D) $(X + 8)(X^2 - 8X + 64)$	
38	$(X - y)(X^2 + Xy + y^2)$ = ... A) $X^3 - y^3$ B) $X^3 + y^3$ C) $8X^3 - y^3$ D) $X^3 - 27y^3$	
39	$(2X - y)(4X^2 + 2Xy + y^2)$ = ... A) $X^3 - y^3$ B) $X^3 + y^3$ C) $8X^3 - y^3$ D) $X^3 - 27y^3$	
40	$(5X + 3y)(25X^2 - 15Xy + 9y^2)$ = ... A) $125X^3 - 8y^3$ B) $125X^3 + 27y^3$ C) $27X^3 - 8y^3$	
41	$(5X + 2y)(25X^2 - 10Xy + 4y^2)$ = ... A) $125X^3 - 8y^3$ B) $125X^3 + 27y^3$ C) $27X^3 - 8y^3$	
42	If : $X^3 - y^3 = 20$, and $X^2 - Xy + y^2 = 4$, then : $X - y$ = ... A) 2 B) 3 C) 4 D) 5	
43	If : $X^3 - y^3 = 36$, and $X^2 - Xy + y^2 = 9$, then : $X - y$ = ... A) 2 B) 3 C) 4 D) 5	
44	If : $X^3 + y^3 = 36$, and $X - y = 3$, then : $X^2 - Xy + y^2$ = ... A) 2 B) 3 C) 4 D) 12	
45	If : $X^3 + y^3 = 12$, and $X - y = 2$, then : $X^2 - Xy + y^2$ = ... A) 6 B) 3 C) 4 D) 5	

46	If : $X - y = 4$ and $X^2 - Xy + y^2 = 3$, then : $X^3 + y^3$ = ... A) 6 B) 12 C) 18 D) 20	
47	If : $X - y = 4$ and $X^2 - Xy + y^2 = 5$, then : $X^3 + y^3$ = ... A) 6 B) 12 C) 18 D) 20	
48	If : ($X + 3$) is a factor of : $X^3 + 27$, then the other factor is ..... A) $X^2 - 5y + 25$ B) $X^2 - 2y + 4$ C) $X^2 - 3y + 9$	
49	$(X - 6)(X + 6)$ = ... A) $X^2 - 4$ B) $X^2 - 9$ C) $X^2 - 25$ D) $X^2 - 36$	

1	A
2	C
3	B
4	C
5	A
6	B
7	C
8	D
9	B
10	C
11	C
12	A
13	B
14	C
15	D

16	D
17	C
18	A
19	D
20	A
21	C
22	A
23	B
24	A
25	C
26	D
27	C
28	A
29	C
30	A
31	C

32	D
33	B
34	A
35	C
36	D
37	B
38	A
39	C
40	B
41	A
42	D
43	C
44	D
45	A
46	B
47	D

48	C
49	D

14	If : (X – 2y + 3 z) = 2 , then (X + 3z) (X – 2y + 3z) – 2y (X – 2y + 3z) = ... A) 4 B) 9 C) 16 D) 25	A
15	If : (X – 2y + 3 z) = 4 , then (X + 3z) (X – 2y + 3z) – 2y (X – 2y + 3z) = ... A) 4 B) 9 C) 16 D) 25	C
16	If : (X – 2y + 3 z) = 5 , then (X + 3z) (X – 2y + 3z) – 2y (X – 2y + 3z) = ... A) 4 B) 9 C) 16 D) 25	D
17	a X + a y – X – y = (X + y) (.....) A) a + 1 B) a + 2 C) a + 3 D) a – 1	D
18	a X + a y + 2 X + 2 y = (X + y) (.....) A) a + 1 B) a + 2 C) a + 3 D) a – 1	B
19	a X + a y + 3 X + 3 y = (X + y) (.....) A) a + 1 B) a + 2 C) a + 3 D) a – 1	C
20	a X + a y + X + y = (X + y) (.....) A) a + 1 B) a + 2 C) a + 3 D) a – 1	A
21	X^4 + 4 can be factorized by adding the term and its additive inverse ..... A) 6 X^2 B) 4 X^2 C) 8 X^2 D) 10 X^2	B
22	X^4 + 9 can be factorized by adding the term and its additive inverse ..... A) 6 X^2 B) 4 X^2 C) 8 X^2 D) 10 X^2	A
23	X^4 + 16 can be factorized by adding the term and its additive inverse ..... A) 6 X^2 B) 4 X^2 C) 8 X^2 D) 10 X^2	C
24	X^4 + 25 can be factorized by adding the term and its additive inverse ..... A) 6 X^2 B) 4 X^2 C) 8 X^2 D) 10 X^2	D
25	X^4 + 36 can be factorized by adding the term and its additive inverse ..... A) 12 X^2 B) 14 X^2 C) 16 X^2 D) 18 X^2	A
26	X^4 + 49 can be factorized by adding the term and its additive inverse ..... A) 12 X^2 B) 14 X^2 C) 16 X^2 D) 18 X^2	B
27	X^4 + 64 can be factorized by adding the term and its additive inverse	C

	A) 12 X^2 B) 14 X^2 C) 16 X^2 D) 18 X^2	
28	$X^4 + 81$ can be factorized by adding the term and its additive inverse ..... A) 12 X^2 B) 14 X^2 C) 16 X^2 D) 18 X^2	D
29	$X^4 + 4 = (X^2 + 2)^2 -$ ..... A) 4 X^2 B) 6 X^2 C) 8 X^2 D) 10 X^2	A
30	$X^4 + 9 = (X^2 + 3)^2 -$ ..... A) 4 X^2 B) 6 X^2 C) 8 X^2 D) 10 X^2	B
31	$X^4 + 16 = (X^2 + 4)^2 -$ ..... A) 4 X^2 B) 6 X^2 C) 8 X^2 D) 10 X^2	C
32	$X^4 + 25 = (X^2 + 5)^2 -$ ..... A) 4 X^2 B) 6 X^2 C) 8 X^2 D) 10 X^2	D
33	$X^4 + 36 = (X^2 + 6)^2 -$ ..... A) 12 X^2 B) 14 X^2 C) 16 X^2 D) 18 X^2	A
34	$X^4 + 49 = (X^2 + 7)^2 -$ ..... A) 12 X^2 B) 14 X^2 C) 16 X^2 D) 18 X^2	B
35	$X^4 + 64 = (X^2 + 8)^2 -$ ..... A) 12 X^2 B) 14 X^2 C) 16 X^2 D) 18 X^2	C
36	$X^4 + 81 = (X^2 + 9)^2 -$ ..... A) 12 X^2 B) 14 X^2 C) 16 X^2 D) 18 X^2	D

1	A
2	D
3	C
4	D
5	A
6	C
7	C
8	B
9	D
10	C
11	B
12	A
13	B
14	A
15	C
16	D
17	D
18	B
19	C

20	A
21	B
22	A
23	C
24	D
25	A
26	B
27	C
28	D
29	A
30	B
31	C
32	D
33	A
34	B
35	C
36	D

Exercises

[B] Choose the correct : -

1	The area of rectangle whose dimensions are 5 cm. and 2 cm. is ..... A) 10 cm^2 B) 12 cm^2 C) 20 cm^2 D) 18 cm^2	
2	The area of rectangle whose dimensions are 5 cm. and 4 cm. is ..... A) 10 cm^2 B) 12 cm^2 C) 20 cm^2 D) 18 cm^2	
3	If the area of rectangle ABCD = 12 cm^2 and AB = 4 cm. , then AC = ... Cm A) 10 B) 5 C) 13 D) 25	
4	If the area of rectangle ABCD = 108 cm^2 and AB = 12 cm. , then AC =..... Cm A) 10 B) 5 C) 15 D) 25	
5	A rectangle whose perimeter is 14 cm. and its length is 4 cm. , then the length of its diagonal is ..... A) 10 B) 5 C) 15 D) 25	
6	A rectangle whose perimeter is 48 cm. and its length is 9 cm. , then the length of its diagonal is ..... A) 10 B) 5 C) 15 D) 25	
7	A square whose diagonal length is 6 cm. , then its area = ... cm^2 A) 18 B) 8 C) 50 D) 32	
8	A square whose diagonal length is $5\sqrt{2}$ cm. , then its area = ... cm^2 A) 18 B) 25 C) 50 D) 36	
9	The area of a square 18 cm^2 , then the length of diagonal = ... cm A) 10 B) 8 C) 6 D) 4	
10	The area of a square 98 cm^2 , then the length of diagonal = ... cm A) 12 B) 14 C) 6 D) 4	
11	A square of perimeter 20 cm. , then its area = ... cm^2 A) 9 B) 4 C) 16 D) 25	
12	A square of perimeter 4 cm. , then its area = ... cm^2 A) 9 B) 4 C) 1 D) 20	
13	The perimeter of the square whose area 9 cm^2 = ... cm A) 4 B) 12 C) 16 D) 20	

14	The perimeter of the square whose area 81 cm^2 = ... cm A) 36 B) 12 C) 24 D) 28	
15	The side length of a square whose area = the area of rectangle of dimensions 9 cm., 16 cm = ... cm A) 9 B) 12 C) 6 D) 10	
16	The side length of a square whose area = the area of rectangle of dimensions 16 cm., 25 cm = ... cm A) 9 B) 15 C) 20 D) 10	
17	The side length of a square whose area = the area of rectangle of dimensions 4 cm., 25 cm = ... cm A) 9 B) 15 C) 6 D) 10	
18	A rhombus whose diagonal lengths are 72 cm. ,10 cm. , then its area = ... A) 60 cm^2 B) 120 cm^2 C) 180 cm^2 D) 360 cm^2	
19	A rhombus whose diagonal lengths are 36 cm. ,10 cm. , then its area = ... A) 60 cm^2 B) 120 cm^2 C) 180 cm^2 D) 360 cm^2	
20	A rhombus whose diagonal lengths are 8 cm. ,6 cm. , then its area = ... A) 60 cm^2 B) 24 cm^2 C) 180 cm^2 D) 360 cm^2	
21	If the area of a rhombus is 60 cm^2 and the length of one of its diagonals is 10 cm. then the length of the other diagonal = ... Cm A) 9 B) 15 C) 12 D) 10	
22	If the area of a rhombus is 40 cm^2 and the length of one of its diagonals is 10 cm. then the length of the other diagonal = ... Cm A) 9 B) 8 C) 6 D) 10	
23	If the area of a rhombus is 60 cm^2 and the length of one of its diagonals is 8 cm. then the length of the other diagonal = ... Cm A) 15 B) 20 C) 6 D) 10	
24	A trapezium whose bases lengths are 6 cm. , 8 cm. , then the length of its middle base equals ..... cm A) 5 B) 6 C) 7 D) 8	
25	A trapezium whose bases lengths are 6 cm. , 4 cm. , then the length of its middle base equals ..... cm A) 5 B) 6 C) 7 D) 8	
26	A trapezium whose bases lengths are 12 cm. , 8 cm. , then the length of its middle base equals ..... cm A) 9 B) 10 C) 7 D) 8	

27	If the length of the middle base of a trapezium is 5 cm. and its height is 4 cm. , then its area ..... cm^2 A) 20 B) 18 C) 30 D) 24	
28	If the length of the middle base of a trapezium is 5 cm. and its height is 6 cm. , then its area ..... cm^2 A) 20 B) 18 C) 30 D) 24	
29	If the length of the middle base of a trapezium is 5 cm. and its height is 7 cm. , then its area ..... cm^2 A) 20 B) 35 C) 60 D) 24	
30	A trapezium whose middle base length is 8 cm. , then the lengths of the parallel bases may be ..... A) 3 , 5 B) 3 , 7 C) 6 , 10 D) 10, 4	
31	A trapezium whose middle base length is 5 cm. , then the lengths of the parallel bases may be ..... A) 3 , 5 B) 3 , 7 C) 6 , 10 D) 10, 4	
32	A trapezium whose middle base length is 9 cm. , then the lengths of the parallel bases may be ..... A) 3 , 5 B) 3 , 7 C) 6 , 10 D) 10, 8	
33	The trapezium in which the lengths of the two parallel bases are 5 cm. , 3 cm. and its height is 5 cm. its area equals ..... cm^2 A) 20 B) 30 C) 40 D) 50	
34	The trapezium in which the lengths of the two parallel bases are 8 cm. , 2 cm. and its height is 6 cm. its area equals ..... cm^2 A) 20 B) 30 C) 40 D) 50	
35	The trapezium in which the lengths of the two parallel bases are 8 cm. , 4 cm. and its height is 7 cm. its area equals ..... cm^2 A) 18 B) 12 C) 42 D) 50	
36	The area of trapezium is 90 cm^2 and the length of its middle base is 15 cm, then its height ..... cm A) 5 B) 6 C) 7 D) 8	
37	The area of trapezium is 70 cm^2 and the length of its middle base is 10 cm, then its height ..... cm A) 5 B) 6 C) 7 D) 8	
38	The area of trapezium is 150 cm^2 and the length of its middle base is 15 cm, then its height ..... cm	

	A) 5 B) 6 C) 7 D) 10	
39	If the area of a trapezium is 60 cm^2 and its height is 5 cm. , then the length of its middle base ..... cm A) 12 B) 20 C) 8 D) 15	
40	If the area of a trapezium is 40 cm^2 and its height is 5 cm. , then the length of its middle base ..... cm A) 12 B) 20 C) 8 D) 15	
41	If the area of a trapezium is 90 cm^2 and its height is 6 cm. , then the length of its middle base ..... cm A) 12 B) 20 C) 8 D) 15	
42	If the area of the trapezium = 72 cm^2 and the lengths of its two parallel bases are 7 cm. and 9 cm. , then its height ..... cm. A) 10 B) 9 C) 8 D) 5	
43	If the area of the trapezium = 150 cm^2 and the lengths of its two parallel bases are 22 cm. and 8 cm. , then its height ..... cm. A) 10 B) 9 C) 8 D) 5	
44	If the area of the trapezium = 90 cm^2 and the lengths of its two parallel bases are 12 cm. and 8 cm. , then its height ..... cm. A) 10 B) 9 C) 8 D) 9	
45	Area of a triangle whose side lengths are 3 cm. , 4 cm. , 5 cm. is..... cm^2 A) 6 B) 24 C) 54 D) 96	
46	Area of a triangle whose side lengths are 6 cm. , 8 cm. , 10 cm. is..... cm^2 A) 6 B) 24 C) 54 D) 96	
47	Area of a triangle whose side lengths are 9 cm. , 12 cm. , 15 cm. is.....cm^2 A) 6 B) 24 C) 54 D) 96	
48	The two base angles of the isosceles trapezium are ..... A) congruent B) complementary C) supplementary D) parallel	
49	The two diagonals of isosceles trapezium are ..... A) congruent B) perpendicular C) different D) parallel	
50	The quadrilateral whose area equals the square of its side length is ..... A) parallelogram B) rectangle C) rhombus D) square	
51	The quadrilateral which its area equals half the square of the lengths of its diagonal is ..... A) parallelogram B) rectangle C) rhombus D) square	

1	A
2	D
3	B
4	C
5	B
6	C
7	C
8	B
9	C
10	B
11	D
12	C
13	B
14	A
15	B
16	C
17	D
18	D
19	C

20	B
21	C
22	B
23	A
24	C
25	A
26	B
27	A
28	C
29	B
30	C
31	B
32	D
33	A
34	B
35	C
36	B
37	C
38	D
39	A

40	C
41	D
42	B
43	A
44	D
45	A
46	B
47	C
48	A
49	A
50	D
51	D

Exercises

1	If $5x = 35$, then $2x + 1 =$ ..... (a) 7 (b) 8 (c) 15 (d) 71	
2	If $\frac{1}{2}x = 4$, then $2x =$ ..... (a) $\frac{1}{16}$ (b) 4 (c) 8 (d) 16	
3	If $\frac{3}{18} = \frac{x}{54}$, then $x =$ ..... (a) 3 (b) 9 (c) 6 (d) 18	
4	The S.S of the equation : $x^2 + 4 = 0$, $x \in \mathbb{Q}$ is ..... (a) $\{2\}$ (b) $\{-2\}$ (c) $\{-2, 2\}$ (d) $\varnothing$	
5	If $x \in \mathbb{R}$, then the solution set of the equation : $x^2 + 16 = 0$ is ..... (a) $\{4, -4\}$ (b) $\{4\}$ (c) $\{-4\}$ (d) $\varnothing$	
6	The S.S. of the equation : $x^2 = 9$ in $\mathbb{N}$ is ..... (a) $\{\varnothing\}$ (b) $\{-3\}$ (c) $\{3\}$ (d) $\{3, -3\}$	
7	The solution set of the equation : $x^2 - 25 = 0$ in $\mathbb{R}$ is ..... (a) $\varnothing$ (b) $\{5\}$ (c) $\{5, -5\}$ (d) $\{25\}$	
8	The S.S. of the equation : $x^2 - 4 = 0$, $x \in \mathbb{Z}$ is ..... (a) $\{2\}$ (b) $\{-2\}$ (c) $\varnothing$ (d) $\{-2, 2\}$	
9	The S.S. of the equation : $x(x - 2) = 0$ in $\mathbb{R}$ is ..... (a) $\{0\}$ (b) $\{2\}$ (c) $\{0, 2\}$ (d) $\{0, -2\}$	

10	The solution set of the equation : $(x+2)(x-5)=0$ in $\mathbb{R}$ is ..... (a) $\{-2\}$ (b) $\{-2,5\}$ (c) $\{0,5\}$ (d) $\{2,-5\}$	
11	The S.S. of the equation : $x^2-x=0$ is ..... (a) $\{0\}$ (b) $\varnothing$ (c) $\{0,1\}$ (d) $\{1\}$	
12	The S.S. of the equation : $x^2-\sqrt{3}x=0$ in $\mathbb{R}$ is ..... (a) $\{0,\sqrt{3}\}$ (b) $\{0,-\sqrt{3}\}$ (c) $\{0\}$ (d) $\{\sqrt{3}\}$	
13	The solution set of the equation : $x^2=4x$ is ..... (a) $\{4\}$ (b) $\{-4\}$ (c) $\{0\}$ (d) $\{0,4\}$	
14	The solution set of the equation : $x^2-5x=0$ in $\mathbb{R}$ is ..... (a) $\varnothing$ (b) $\{5\}$ (c) $\{0,5\}$ (d) $\{5,-5\}$	
15	The S.S. of the equation in $\mathbb{R}$: $x^2+4x+4=0$ is ..... (a) $\{2,-2\}$ (b) $\{2\}$ (c) $\{-2\}$ (d) $\{4,2\}$	
16	The S.S. of the equation : $x^2-5x+6=0$ is ..... (a) $\{1,6\}$ (b) $\{-1,-6\}$ (c) $\{2,3\}$ (d) $\{-3,-2\}$	
17	The S.S. of the equation in $\mathbb{R}$: $x^2+6x+9=0$ is ..... (a) $\{3,-3\}$ (b) $\{-3\}$ (c) $\{3\}$ (d) $\{3,2\}$	
18	If $(x+1)^2=1$, then $x\in$ ..... (a) $\{0,2\}$ (b) $\{0,-2\}$ (c) $\{0\}$ (d) $\varnothing$	
19	If 2 is the solution of : $x^2-5x+\ell=0$, then $\ell=$ ..... (a) -3 (b) -6 (c) 3 (d) 6	

20	If Malak age now is x years , then his age after 5 years will be ..... years. (a) $x + 5$ (b) $x - 5$ (c) $5x$ (d) $5 \div x$	
21	If the age of Zyad now is x years , then his age 5 years ago is ..... years. (a) $5x$ (b) $5 - x$ (c) $x - 5$ (d) $x + 5$	
22	If four times a number is 48 , then one third of this number is ..... (a) 4 (b) 8 (c) 12 (d) 9	

1	C
2	D
3	B
4	D
5	D
6	D
7	C
8	D
9	C
10	B
11	C
12	A
13	D
14	C

15	C
16	C
17	B
18	B
19	D
20	A
21	C
22	A

Exercises

[B] Choose the correct : -

1	$2^5 \times 2^3 =$ ..... A) 2^5 B) 2^8 C) 3^5 D) 3^{10}	
2	$2^2 \times 2^3 =$ ..... A) 2^5 B) 2^4 C) 3^5 D) 3^{10}	
3	$2^5 \times 2 =$ ..... A) 2^5 B) 2^6 C) 3^5 D) 3^{10}	
4	$3^7 \div 3^3 =$ ..... A) 2^5 B) 2^4 C) 3^4 D) 3^5	
5	$3^8 \div 3^3 =$ ..... A) 2^5 B) 2^4 C) 3^4 D) 3^5	
6	$3^8 \div 3 =$ ..... A) 2^5 B) 2^4 C) 3^4 D) 3^7	
7	$2^{99} + 2^{99} =$ ..... A) 2^{99} B) 2^{198} C) 2^{200} D) 2^{100}	
8	$3^5 + 3^5 + 3^5 =$ ..... A) 3^{15} B) 3^{125} C) 3^6 D) 3^8	
9	$3^{19} + 3^{19} + 3^{19} =$ ..... A) 3^{19} B) 3^{57} C) 3^{20} D) 3^8	
10	$0.002 \times 0.05 =$ ..... A) 9 B) 10^{-4} C) 1/9 D) 3/2	
11	-3^3 ..... A) – 27 B) 10^{-4} C) 1/9 D) 3/2	

12 $(\frac{3}{\sqrt{3}})^{-4}$ = ...

A) – 9 B) 10^{-4} C) 1/9 D) 3/2

13 $2^5 \times 3^5$ = ...

A) 6^5 B) 10^5 C) 15^5 D) 6^{10}

14 $2^{10} \times 3^{10}$ = ...

A) 6^5 B) 10^5 C) 15^5 D) 6^{10}

15 $2^5 \times 5^5$ = ...

A) 6^5 B) 10^5 C) 15^5 D) 10^{10}

16 $\frac{1}{2}$ the number 2^7 = ...

A) 3^5 B) 2^6 C) 5^6 D) 7^8

17 $\frac{1}{3}$ the number 3^6 = ...

A) 3^5 B) 2^7 C) 5^6 D) 7^8

18 $\frac{1}{4}$ the number 4^{20} = ...

A) 3^5 B) 2^7 C) 4^{19} D) 7^8

19 $\left(\frac{2}{3}\right)^X = \frac{4}{9}$, then X = ...

A) 2 B) 3 C) – 3 D) – 2

20 $\left(\frac{2}{3}\right)^X = \frac{8}{27}$, then X = ...

A) 2 B) 3 C) – 3 D) – 2

21 $\left(\frac{2}{3}\right)^X = \frac{27}{8}$, then X = ...

A) 2 B) 3 C) – 3 D) – 2

22 If : $3^X \times 2^{-X} = \frac{3}{2}$, then X = ...

A) 1 B) 2 C) 3 D) 4

23	If : $3^x \times 2^{-x} = \frac{9}{4}$, then X = ... A) 1 B) 2 C) 3 D) 4	
24	If : $3^x \times 2^{-x} = \frac{27}{8}$, then X = ... A) 1 B) 2 C) 3 D) 4	
25	If : $X^2 Y^{-2} = 5$, then $\frac{X^2}{Y^2}$ = ... A) 5 B) 2 C) 3 D) 9	
26	If : $X^2 Y^{-2} = 5$, then $\frac{Y^2}{X^2}$ = ... A) 5 B) 1/5 C) 3 D) 9	
27	If : $X^2 Y^{-2} = 9$, then $\frac{X}{Y}$ = ... A) 5 B) 3 C) – 3 D) ± 3	
28	If : $3^{X-4} = 1$, then : X = ... A) 1 B) 2 C) 3 D) 4	
29	If : $5^{X-2} = 1$, then : X = ... A) 1 B) 2 C) 3 D) 4	
30	If : $2^{X-3} = 1$, then : X = ... A) 1 B) 2 C) 3 D) 4	
31	If : $2^X = 4$, then X = ... A) 1 B) 2 C) 3 D) 4	
32	If : $2^X = 8$, then X = ... A) 1 B) 2 C) 3 D) 4	
33	If : $3^X = 9$, then X = ... A) 1 B) 2 C) 3 D) 4	

34	If : $(X-4)^{zero} = 1$, then $X \in$ ..... A) $\mathbb{R}-\{1\}$ B) $\mathbb{R}-\{2\}$ C) $\mathbb{R}-\{3\}$ D) $\mathbb{R}-\{4\}$	
35	If : $(X-3)^{zero} = 1$, then $X \in$ ..... A) $\mathbb{R}-\{1\}$ B) $\mathbb{R}-\{2\}$ C) $\mathbb{R}-\{3\}$ D) $\mathbb{R}-\{4\}$	
36	If : $(X-1)^{zero} = 1$, then $X \in$ ..... A) $\mathbb{R}-\{1\}$ B) $\mathbb{R}-\{2\}$ C) $\mathbb{R}-\{3\}$ D) $\mathbb{R}-\{4\}$	
37	If : $2^x = 3$, then $8^x =$ ..... A) 27 B) 9 C) 81 D) 4	
38	If : $2^x = 3$, then $4^x =$ ..... A) 27 B) 9 C) 81 D) 4	
39	If : $2^x = 3$, then $16^x =$ ..... A) 27 B) 9 C) 81 D) 4	
40	If : $3^x = 7$, then $3^{x+1} =$ ..... A) 15 B) 21 C) 20 D) 35	
41	If : $3^x = 5$, then $3^{x+1} =$ ..... A) 15 B) 21 C) 20 D) 35	
42	If : $5^x = 4$, then $5^{x+1} =$ ..... A) 15 B) 21 C) 20 D) 35	
43	If : $5^x = 1$, then $5^{x-1} =$ ..... A) 0.8 B) 0.6 C) 0.2 D) 0.4	
44	If : $5^x = 2$, then $5^{x-1} =$ ..... A) 0.8 B) 0.6 C) 0.2 D) 0.4	
45	If : $5^x = 3$, then $5^{x-1} =$ ..... A) 0.8 B) 0.6 C) 0.2 D) 0.4	

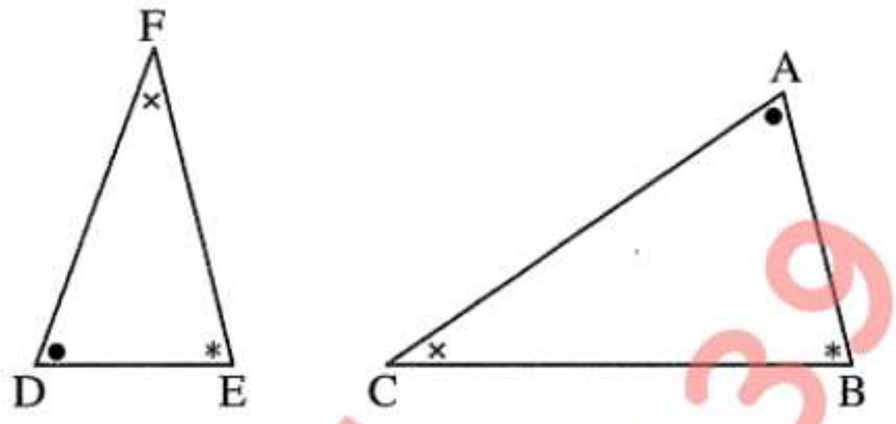
1	B
2	A
3	B
4	C
5	D
6	D
7	D
8	C
9	C
10	B
11	A
12	C
13	A
14	D
15	B
16	B

17	A
18	C
19	A
20	B
21	C
22	A
23	B
24	C
25	A
26	B
27	D
28	D
29	B
30	C
31	B
32	C
33	B

34	D
35	C
36	A
37	A
38	B
39	C
40	B
41	A
42	C
43	C
44	D
45	B

For example:

- **In the opposite figure :**



$\Delta ABC \sim \Delta DEF$ because :

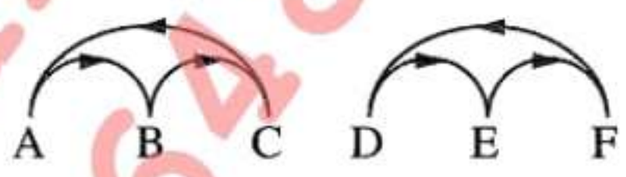
$m(\angle A) = m(\angle D)$,

$m(\angle B) = m(\angle E)$,

$m(\angle C) = m(\angle F)$

As a result for their similarity , we find that :

$$\frac{AB}{DE} = \frac{BC}{EF} = \frac{CA}{FD}$$



Remarks

1. The two right-angled triangles are similar if the measure of an acute angle in one of them is equal to the measure of an acute angle in the other.
2. The two equilateral triangles are similar.
3. The two isosceles triangles are similar if the measure of an angle in one of them equals the measure of the corresponding angle in the other.

Exercises

[B] Choose the correct : -

1	In the two similar polygons their corresponding angles are..... in measure A) equal B) difference C) proportional D) alternatives	
2	If the ratio of enlargement between two triangles equals 1 , then the two triangles are ..... A) congruent B) different C) right-angle D) coincide	
3	If the ratio of enlargement between two similar triangles equals ..... two triangles are congruent A) 1 B) 2 C) 0.5 D) 0.25	
4	The ratio between the lengths of two corresponding sides of two similar polygons is 2 : 5 , then the ratio between their perimeters is ..... A) 3 : 5 B) 2 : 5 C) 5 : 2 D) 5 : 3	
5	The ratio between the lengths of two corresponding sides of two similar polygons is 5 : 2 , then the ratio between their perimeters is	

	A) 3 : 5 B) 2 : 5 C) 5 : 2 D) 5 : 3	
6	The ratio between the lengths of two corresponding sides of two similar polygons is 3 : 5 , then the ratio between their perimeters is ..... A) 3 : 5 B) 2 : 5 C) 5 : 2 D) 5 : 3	
7	The ratio between the lengths of two corresponding sides of two similar polygons is 5 : 3 , then the ratio between their perimeters is ..... A) 3 : 5 B) 2 : 5 C) 5 : 2 D) 5 : 3	
8	If two polygons are similar and the ratio between the lengths of two corresponding sides is 1 : 3 and the perimeter of smaller polygon is 7 cm. , then the perimeter of the greater polygon is ..... Cm. A) 45 B) 30 C) 21 D) 60	
9	If two polygons are similar and the ratio between the lengths of two corresponding sides is 1 : 3 and the perimeter of smaller polygon is 10 cm. , then the perimeter of the greater polygon is ..... Cm. A) 45 B) 30 C) 21 D) 60	
10	If two polygons are similar and the ratio between the lengths of two corresponding sides is 1 : 3 and the perimeter of smaller polygon is 15 cm. , then the perimeter of the greater polygon is ..... Cm. A) 45 B) 30 C) 21 D) 60	
11	The ratio between the lengths of corresponding sides of two similar triangles is 4 : 5 and if the perimeter of the greater triangle is 60 cm. , then the perimeter of the smaller is ..... A) 40 B) 36 C) 48 D) 100	
12	The ratio between the lengths of corresponding sides of two similar triangles is 3 : 5 and if the perimeter of the greater triangle is 75 cm. , then the perimeter of the smaller is ..... A) 40 B) 36 C) 24 D) 45	
13	The ratio between the lengths of corresponding sides of two similar triangles is 3 : 5 and if the perimeter of the greater triangle is 60 cm. , then the perimeter of the smaller is ..... A) 40 B) 36 C) 24 D) 100	
14	If $\Delta ABC \sim \Delta XYZ$ and $\frac{AB}{XY} = 1$, then ..... A) AB = YZ B) BC = YZ C) AC = XA D) AB = BC	
15	If $\Delta ABC \sim \Delta XYZ$ and $\frac{AB}{XY} = 1$, then ..... A) AB = YZ B) BC = XY C) AX = XZ D) CA = ZX	

16 If $\Delta ABC \sim \Delta XYZ$ and $\frac{AB}{XY} = 1$, then .....

A) BC = YZ B) BC = XY C) AX = XZ D) AB = BC

17 If $\Delta ABC \sim \Delta DEO$ and $\frac{AB}{DE} = \frac{1}{3}$, then : $\frac{\text{The perimeter of ABC}}{\text{The perimeter of DEO}}$ = ...

A) $\frac{1}{2}$ B) $\frac{1}{3}$ C) $\frac{1}{4}$ D) $\frac{2}{5}$

18 If $\Delta ABC \sim \Delta DEO$ and $\frac{AB}{DE} = \frac{1}{4}$, then : $\frac{\text{The perimeter of ABC}}{\text{The perimeter of DEO}}$ = ...

A) $\frac{1}{2}$ B) $\frac{1}{3}$ C) $\frac{1}{4}$ D) $\frac{2}{5}$

19 If $\Delta ABC \sim \Delta DEO$ and $\frac{AB}{DE} = \frac{2}{5}$, then : $\frac{\text{The perimeter of ABC}}{\text{The perimeter of DEO}}$ = ...

A) $\frac{1}{2}$ B) $\frac{1}{3}$ C) $\frac{1}{4}$ D) $\frac{2}{5}$

20 If $\Delta ABC \sim \Delta DEO$ and $AB = \frac{1}{3} DE$, then perimeter of ΔABC equals = ... then perimeter of ΔABC equals

A) $\frac{1}{2}$ B) $\frac{1}{3}$ C) $\frac{1}{4}$ D) $\frac{2}{5}$

21 If $\Delta ABC \sim \Delta DEO$ and $AB = \frac{1}{4} DE$, then perimeter of ΔABC equals = ... then perimeter of ΔABC equals

A) $\frac{1}{2}$ B) $\frac{1}{3}$ C) $\frac{1}{4}$ D) $\frac{2}{5}$

22 If $\Delta ABC \sim \Delta DEO$ and $AB = \frac{1}{2} DE$, then perimeter of ΔABC equals = ... then perimeter of ΔABC equals

A) $\frac{1}{2}$ B) $\frac{1}{3}$ C) $\frac{1}{4}$ D) $\frac{2}{5}$

23 If $\Delta ABC \sim \Delta XYZ$ and $m(\angle A) + m(\angle X) = 100°$, then : $m(\angle A)$ = ...°

A) 40 B) 50 C) 60 D) 70

24 If $\Delta ABC \sim \Delta XYZ$ and $m(\angle A) + m(\angle X) = 100°$, then : $m(\angle X)$ = ...°

A) 40 B) 50 C) 60 D) 70

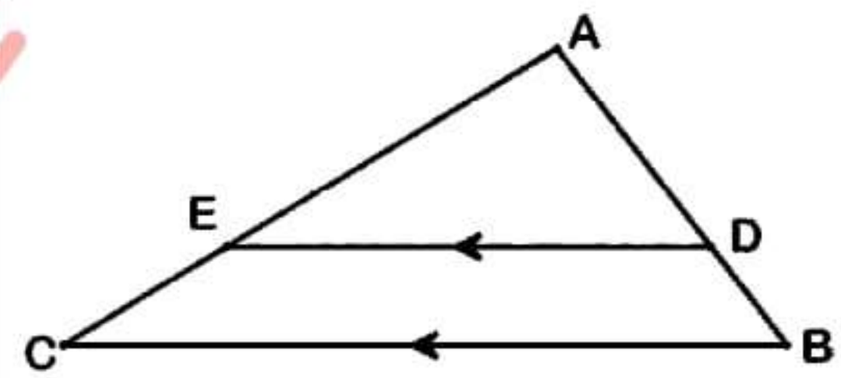
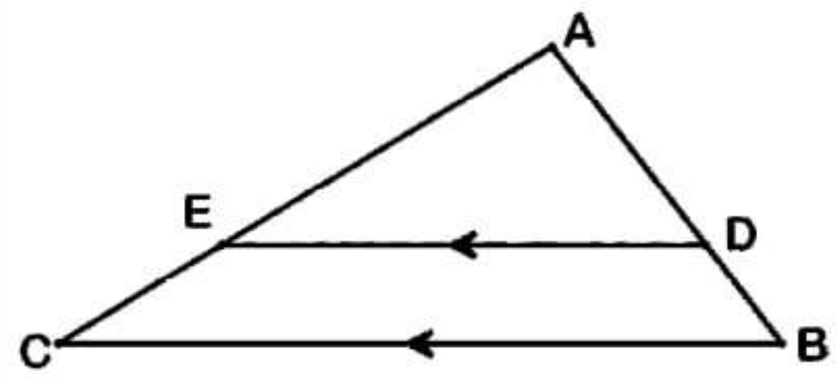
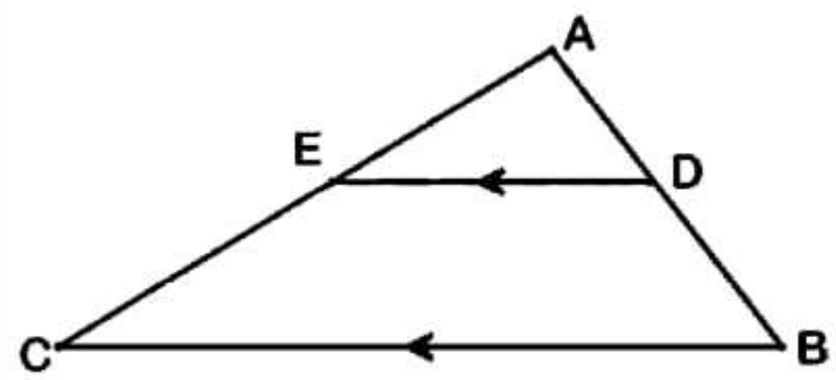
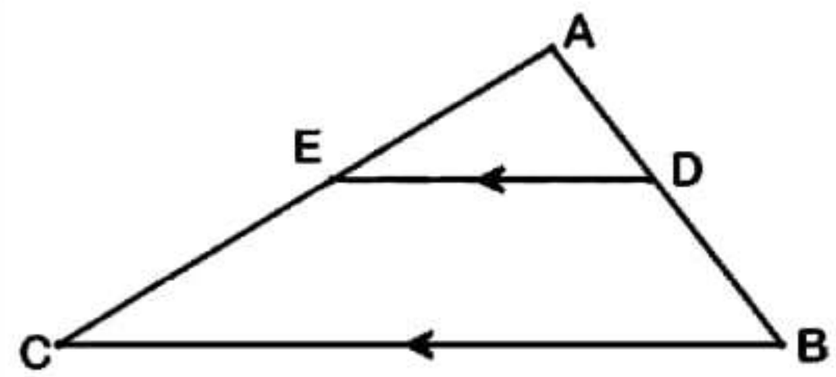
25 If $\Delta ABC \sim \Delta XYZ$ and $m(\angle A) + m(\angle X) = 120°$, then : $m(\angle A)$ = ...°

A) 40 B) 50 C) 60 D) 70

26 If $\Delta ABC \sim \Delta XYZ$ and $m(\angle A) + m(\angle X) = 120°$, then : $m(\angle X)$ = ...°

A) 40 B) 50 C) 60 D) 70

27 If $\Delta ABC \sim \Delta XYZ$ and $m(\angle A) + m(\angle X) = 80°$, then : $m(\angle A)$ = ...°

	A) 40 B) 50 C) 60 D) 70	
28	If Δ ABC ~ Δ XYZ and m ($\angle$ A) + m ($\angle$ X) = 80° , then : m ($\angle$ X) = ...° A) 40 B) 50 C) 60 D) 70	
29	If Δ ABC ~ Δ DEF and m ($\angle$ B) + m ($\angle$ C) = 60° , then : m ($\angle$ D) = ...° A) 100 B) 110 C) 120 D) 80	
30	If Δ ABC ~ Δ DEF and m ($\angle$ B) + m ($\angle$ C) = 100° , then : m ($\angle$ D) = ...° A) 100 B) 110 C) 120 D) 80	
31	If Δ ABC ~ Δ DEF and m ($\angle$ B) + m ($\angle$ C) = 70° , then : m ($\angle$ D) = ...° A) 100 B) 110 C) 120 D) 80	
32	If Δ ABC ~ Δ ADE , AB = 5 cm. , AD = 4 cm. and BC = 10 cm, then DE = ... A) 12 B) 20 C) 8 D) 24	
33	If Δ ABC ~ Δ ADE , AB = 5 cm. , AD = 4 cm. and BC = 30 cm, then DE = ... A) 12 B) 20 C) 8 D) 24	
34	If Δ ABC ~ Δ ADE , AB = 5 cm. , AD = 4 cm. and BC = 15 cm, then DE = ... A) 12 B) 20 C) 8 D) 24	
35	In the opposite figure : AD = 5 cm. , AE = 20 cm. and DB = 2 cm, then CE = ... cm A) 4 B) 6 C) 8 D) 10	
36	In the opposite figure : AD = 5 cm. , AE = 25 cm. and DB = 2 cm, then CE = ... cm A) 4 B) 6 C) 8 D) 10	
37	In the opposite figure : AD = 2 cm. , DB = 4 cm. and DE = 4 cm, then CE = ... cm A) 9 B) 12 C) 15 D) 18	
38	In the opposite figure : AD = 2 cm. , DB = 4 cm. and DE = 3 cm, then CE = ... cm A) 9 B) 12 C) 15 D) 18	

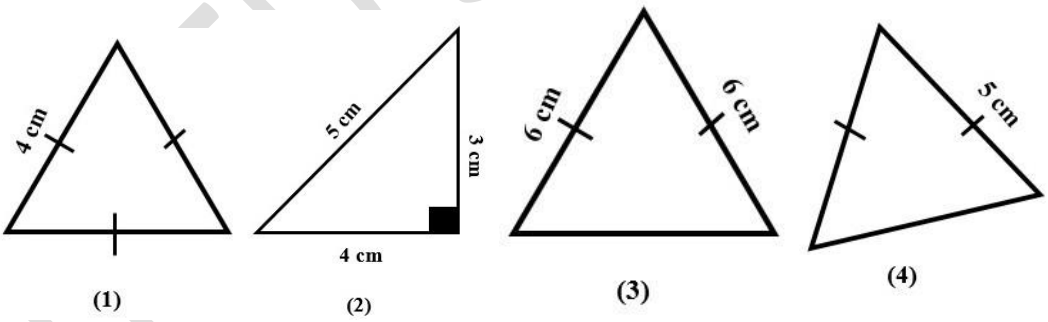
1	A
2	A
3	A
4	B
5	C
6	A
7	D
8	C
9	B
10	A
11	C
12	D
13	B
14	B
15	D
16	A
17	B
18	C
19	D

20	B
21	C
22	A
23	B
24	B
25	C
26	C
27	A
28	A
29	C
30	D
31	B
32	C
33	D
34	A
35	C
36	D
37	B
38	A

1)	Rhombus of side length 5 cm and it's height = 3cm then it's Area = (a) $20cm^2$ (b) 15cm (c) $15cm^2$ (d) $30cm^2$
2)	The Area of rhombus whose diagonals lengths are 8cm , 10cm (a) $50cm^2$ (b) 80cm (c) 40cm (d) $40cm^2$
3)	The Area of trapezium whose bases lengths are 6cm and 8cm and it's height = 12cm: (a) 576cm (b) $84cm^2$ (c) 84cm (d) 567cm
4)	Area of trapezium whose middle base length is 7cm and it's height = 6cm: (a) $42cm^2$ (b) 21cm (c) $82cm^2$ (d) $21cm^2$
5)	The Area of trapezium is $40cm^2$ and the lengths of two parallel bases are 7cm , 9cm , then it's height is: (a) 10cm (b) 7cm (c) 8cm (d) 5cm
6)	If the ratio between the lengths of two corresponding sides in two similar triangles is equal to 1 then the two triangles are: (a) similar (b)equal (c)congruent (d)right

7)	If two polygons are similar and the ratio between the length of two corresponding sides is 3 : 4 then the ratio between their perimeters is : (a) 4 : 3 (b) 1 : 4 (c) 3 : 4 (d) 3 : 3
8)	The area of rhombus is 20 cm^2 , the length of one of its diagonals is 5 cm , then the length of the other diagonal = (a) 8cm (b) 4cm (c) 10cm (d) 15cm
9)	If the area of a square is 50 cm^2 , then the length of it's diagonal= (a) 25cm (b) 5cm (c) 10cm (d) 20cm
10)	the area of a square whose side length is 6cm ..... The area of the square whose diagonal length is 8cm. (a) > (b) < (c) = (d) ≡
11)	If the perimeter of a rhombus is 24cm. and its area = 30cm^2. then its height= (a) 4cm (b) 5cm (c) 6cm (d) 12cm
12)	If the product of the length of the diagonals of a rhombus = 96cm^2 . and its height is 6cm , then its side length= (a) 12cm (b) 8cm (c) 6cm (d) 4cm
13)	The trapezium in which the length of its two parallel bases are 15cm. and 11cm. its middle base is with length (a) 26cm (b) 15cm (c) 13cm (d) 11cm

14)	If the area a trapezium is $32cm^2$. and its height is 4cm. then the length of its middle base = (a) 4cm (b) 8cm (c) 14cm (d) 16cm
15)	If the area a trapezium is $450cm^2$, and the lengths of its two parallel bases are 24cm. and 12 cm ,then its height= (a) 12.5cm (b) 25cm (c) 36cm (d) 52cm
16)	The trapezium in which the length of one of its parallel bases is 15cm , and its area is $108cm^2$, and its height is 8cm, then the length of the other base is (a) 15cm (b) 4cm (c) 12cm (d) 27cm
17)	The trapezium whose middle base length is x cm. and its height $= \frac{1}{2}$ the length of the middle base , its area =.....cm^2 (a) x^2 (b) $\frac{x^2}{2}$ (c) $\frac{x^2}{4}$ (d) $\frac{x^2}{8}$
18)	The length of the two parallel bases of a trapezium are 14cm. and 10cm . and its area is $120cm^2$, then its height = ... (a) 5cm (b) 10cm (c) 20cm (d) 30cm
19)	If the ratio of magnification between two similar triangles is 3 : 2 and the length of a side from the greatest triangle = 15cm, then the length of the corresponding side in the smallest triangle = (a) 5cm (b) 10cm (c) 6cm (d) 9cm

20)	If the area of a square is $18cm^2$, then its diagonal length = (a) 36cm (b) 12cm (c) 9cm (d) 6cm
21)	If the ratio of magnification between two similar triangles = 1 then the two triangles are (a) congruent (b) different (c) right-angled (d) equilateral
22)	The trapezium in which the lengths of the two parallel bases are 6cm. and 14cm and its height is 5cm , then its area $=\ldots cm^2$ (a) 100 (b) 24 (c) 40 (d) 50
23)	ABCD is a parallelogram , $E\epsilon \in CD$, if the area of $\Delta AEB = 15cm^2$, then the area of ▱ ABCD $=\ldots\ldots cm^2$ (a) 15 (b) 7.5 (c) 30 (d) 60
24)	Which of the following triangles are similar?  (a) the triangle (1) and (4) (b) the triangle (2) and (4) (c) the triangle (1) and (3) (d) the triangle (3) and (4)
25)	If the perimeter of a rhombus is 52 cm. and the length of one of its diagonals is 10cm , then its area = ...cm^2 (a) 130 (b) 120 (c) 62 (d) 30

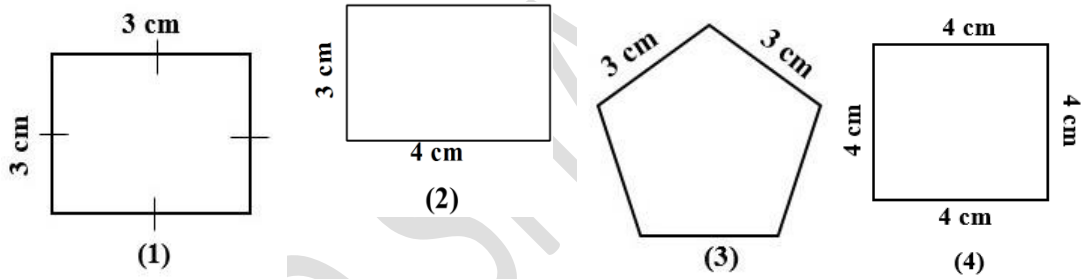
26) Two similar polygons in which the ratio between the length of two corresponding sides is 1 : 3 , if the perimeter of the smallest polygon is 20 cm. then the perimeter of the greatest one=.....cm

(a) 20 (b) 40 (c) 60 (d) 10

27) A trapezium in which the lengths of its two parallel bases are 8cm , and 10cm , then the length of its middle base = ...cm

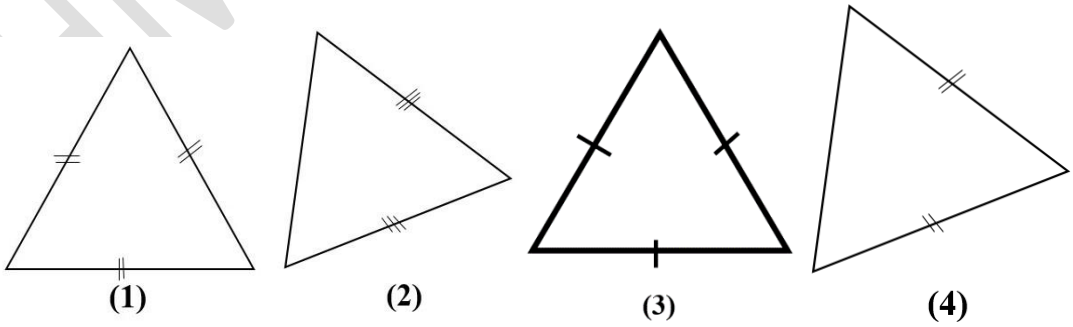
(a) 80 (b) 18 (c) 9 (d) 2

28) Which of the following polygons are similar?



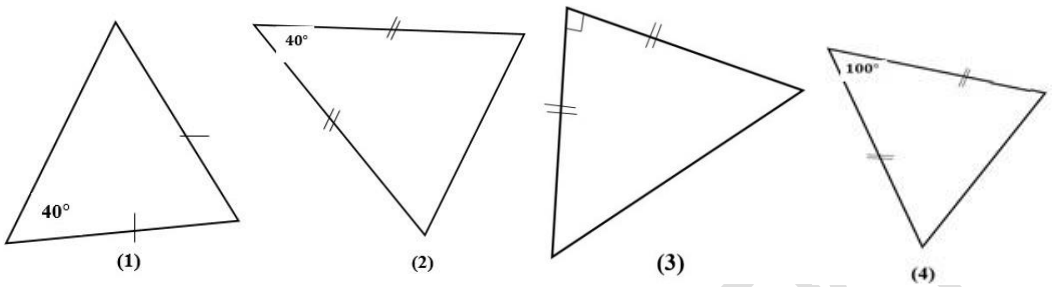
(a) the polygons (1) and (3) (b the polygons (1) and (4)
(c) the polygons (2) and (3) (d) the polygons (2) and (4)

29) In the following figures , there are two similar triangle , they are



(a) 1,2 (b) 1,3 (c) 1,4 (d) 2,4

30) In the following figures, there are two similar triangle , they are



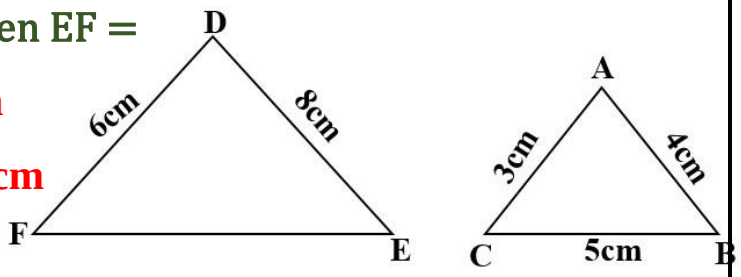
(a) 1,2 **(b) 1,3** **(c) 2,4** **(d) 1,4**

31) In the opposite figure:

if $\Delta ABC \sim \Delta DEF$, then EF =

(a) 5cm **(b) 6cm**

(c) 8cm **(d) 10cm**

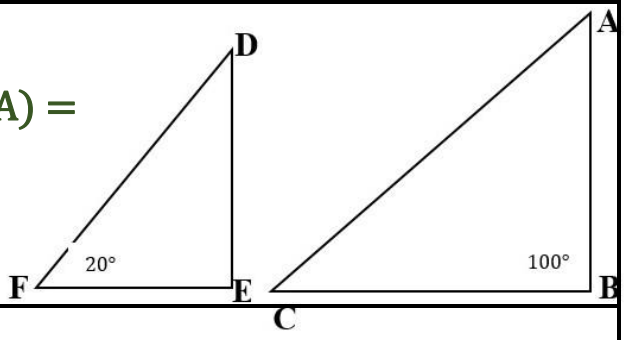


32) In the opposite figure:

if $\Delta ABC \sim \Delta DEF$, then m(A) =

(a) 20° **(b) 60°**

(c) 80° **(d) 100°**



33) In the opposite figure:

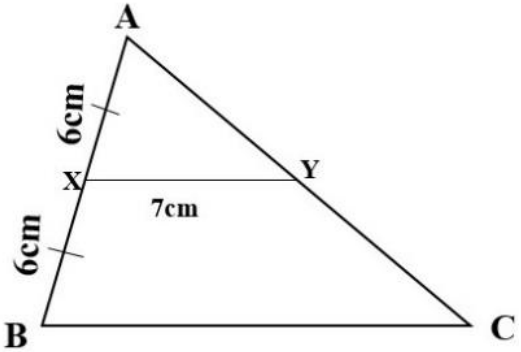
if $\Delta ABC \sim \Delta AXY$,

AX = XB = 6cm

XY = 7cm , then BC =

(a) 6cm **(b) 7cm**

(c) 12cm **(d) 14cm**



34)	If the ratio between the length of two corresponding sides of two squares is 1 and the perimeter of one of them is 20 cm , then the area of the other squares= ……cm^2 (a) 20 (b) 25 (c) 16 (d) 25
35)	If $\Delta ABC \sim \Delta DEF$ and AB = $\frac{1}{5}$ DE , then perimeter of ΔABC= …… perimeter (a) 5 (b) 1 (c) $\frac{1}{5}$ (d) $\frac{2}{5}$
36)	Two similar rectangles , the length of the first rectangle is 5cm. and of the second one is 10cm , then the ratio between the perimeter of the first : the perimeter of the second equals (a) 1 : 5 (b) 1 : 3 (c) 1 : 2 (d) 2 : 1
37)	The area of a rhombus is $24cm^2$, and the length of one of its diagonal is 6cm , then the length of the other diagonal=…..cm (a) 4 (b) 8 (c) 10 (d) 12
38)	The area of the square whose diagonal length is 8cm , equals….cm^2 (a) 8 (b) 16 (c) 32 (d) 64
39)	The area of the trapezium = middle base x …….. (a) diagonal (b) height (c) base (d) perimeter
40)	The middle base of trapezium = ……. sum of lengths of the two parallel bases (a) $\frac{1}{3}$ (b) $\frac{1}{4}$ (c) $\frac{1}{2}$ (d) twice

1)	If x + y = 4 , $x^2 - xy + y^2 = 5$, then $x^3 + y^3 =$ (a) $\frac{5}{4}$ (b) 20 (c) 9 (d)10
2)	The S.S of the equation : $(x-1)^2 = 0$ in R is (a) $\{0\}$ (b) $\{-1\}$ (c) $\{-1, 1\}$ (d) $\{1\}$
3)	If the age of Zyad now is X years, then his age 3 years ago was ……years (a) 3x (b) 3-x (c) x-3 (d)x+3
4)	The S. S of the equation : 5x (x – 3) = 0 in R is (a) $\{5\}$ (b) $\{5, 0, 3\}$ (c) $\{5, 3\}$ (d) $\{0, 3\}$
5)	If $y^3 - a = (y-3)(y^2 + 3y + 9)$, then a = (a) 27 (b) 9 (c) 3 (d)6
6)	The S. S of the equation: $x^2 + 4 = 0$ in R is (a) $\{-4\}$ (b) $\emptyset$ (c) $\{-2, 2\}$ (d) $\{4, -4\}$
7)	If $x^2 - 2xy + y^2 = 25$, then x – y = (a) 25 (b) -5 (c) 5 (d)± 5
8)	If $x^3 - y^3 = 12$, $x^2 + 2xy + y^2 = 4$ then x – y = (a) 48 (b) 3 (c) 16 (d)8
9)	The S. S of the equation : 5 (x – 7)(x + 3) = 0 in R is (a) $\{-7, 3\}$ (b) $\{7, -3\}$ (c) $\{5, 7, -3\}$ (d) $\{-5, 7, -3\}$
10)	If sarah's age now is x years , then the square of her age after 2 years is (a) x^2+2 (b) x^2+4 (c) $(x-2)^2$ (d) $(x+2)^2$

11)	If $x^3 - 8 = (x + a)(x^2 + 2x + 4)$, then a = (a) 4 (b) -4 (c) 2 (d)-2
12)	The term should be added to the expression: $x^4 + 4y^4$ to be factorized as a perfect square is (a)$2x^2y^2$ (b) $8x^2y^2$ (c) $4x^2y^2$ (d) $16xy$
13)	The S.S of the equation : x (x – 2) = 0 in R is (a) $\{0\}$ (b) $\{0, -2\}$ (c) $\{0, 2\}$ (d) $\{2\}$
14)	The S.S of the equation : 3 (x – 2) (x + 5) = 0 in R is (a) $\{0, 2, -5\}$ (b) $\{3, 2, -5\}$ (c) $\{2, -5\}$ (d) $\{-2, 5\}$
15)	The S.S of the equation : $x^2 - 4 = 0$ in R is (a) $\{4\}$ (b) $\{4, -4\}$ (c) $\{2\}$ (d) $\{2, -2\}$
16)	The S.S of the equation : $x^2 + 25 = 0$ in R is (a) $\{5\}$ (b) $\{5, -5\}$ (c) $\{-5\}$ (d) $\{\emptyset\}$
17)	The S.S of the equation : $(x - 4)^2 = 0$ in R is (a) $\{4\}$ (b) $\{0, 4\}$ (c) $\{0, -4\}$ (d) $\{-4\}$
18)	The S.S of the equation : x (x – 3) = 5 x in R is (a) $\{3\}$ (b) $\{0, 3, 5\}$ (c) $\{3, 5\}$ (d) $\{0, 8\}$
19)	The S.S of the equation : $\frac{4}{x} = \frac{x}{9}$= in R is (a) $\{4, 9\}$ (b) $\{6, -6\}$ (c) $\{6\}$ (d) $\{36\}$
20)	The equation whose roots are 3 and 5 is (a)$5x^2 + 8x + 3 = 0$ (b) $2x^2 + 8x - 15 = 0$ (c) $x^2 - 8x + 15 = 0$ (d) $3x^2 + 8x + 5 = 0$

21)	If the age of Basem now is x years , then his age 3 years ago was ……. Years (a) 3 x (b) x + 3 (c) x - 3 (d)x^3
22)	If the age of Amged now is x years , then his age after 7 years will be ……. Years (a) 7 x (b) x - 7 (c) x + 7 (d)x^7
23)	If the age of Ayman 5 years ago was x years , then his age now is ……. Years (a) x - 5 (b) x + 5 (c) 5 x (d)$\frac{x}{5}$
24)	If the age of Sally 2 years ago was x years , then her age after 3 years from now will be ……. Years (a) x + 2 (b) x + 3 (c) x + 5 (d)$6x$
25)	If the age of Magdy now is x years , then the square of his age after 2 years is (a)$x^2 + 2$ (b) $x^2 + 4$ (c) $(x-2)^2$ (d) $(x+2)^2$
26)	If the age of Samy now is x years , then twice his age 5 years ago is ……. years (a) $x - 5$ (b) $2x - 5$ (c) $x - 10$ (d) $2x - 10$
27)	Three times the square of the number x is (a) $(3x)^2$ (b) $x^2 + 3$ (c) $3x^2$ (d) $\frac{x^2}{3}$
28)	$ax + yx + y + a =$ (a)$(a+1)(x+y)$ (b) $(x+a)(y+1)$ (c) $(a+y)(x+1)$ (d) $(a+x)(y+x)$

29)	$xy + 5y + 7x + 35 =$ (a) $(x + 7)(y + 5)$ (b) $(x + 5)(y + 7)$ (c) $(x + 7)(y - 5)$ (d) $(x - 5)(y - 7)$
30)	$3ax - a - 6bx + 2b =$ (a) $(3x - 1)(a - 2b)$ (b) $(3x - 2b)(a - 1)$ (c) $(3x + 1)(a + 2b)$ (d) $(3x - 2)(a + 1)$
31)	$a^2 + 2ab + b^2 - c^2 =$ (a) $(a + b - c)(a + b)$ (b) $(a - b + c)(a + b - c)$ (c) $(a + b - c)(a + b + c)$ (d) $(a + b + c)(a - b - c)$
32)	$x^2 + 4 =$ (a) $(x^2 - 2x + 2)(x^2 - 2x + 2)$ (b) $(x^2 - 2x - 2)(x^2 + 2x - 2)$ (c) $(x^2 + 2x - 2)(x^2 + 2x + 2$ (d) $(x^2 - 2x + 2)(x^2 + 2x + 2)$
33)	$x^4 + 9x^2 + 81 =$ (a) $(x^2 - 3x + 9)(x^2 + 3x - 9)$ (b) $(x^2 + 3x - 9)(x^2 - 3x + 9)$ (c) $(x^2 - 3x + 9)(x^2 + 3x + 9)$ (d) $(x^2 - 3x - 9)(x^2 + 3x + 9)$
34)	$3^{-2} =$ (a) -9 (b) $-\frac{1}{9}$ (c) $\frac{1}{9}$ (d) 9
35)	If $6^x = 7$, then $6^{x+1} =$ (a) 8 (b) 13 (c) 36 (d) 42

36)	If $3^x = 5$, then $27^x =$ (a) 9 (b) 25 (c) 125 (d) 729
37)	$2^5 + 2^5 + 2^5 + 2^5 =$ (a) 2^4 (b)2^6 (c) 2^7 (d)2^{20}
38)	$(\sqrt{3})^6 \times 3^4 =$ (a) $(\sqrt{3})^{24}$ (b)3^{10} (c) 3^7 (d)$(\sqrt{3})^{10}$
39)	One sixth of the number : $2^{12} \times 3^{12}$ *is* (a) 6^2 (b)6^4 (c) 6^{11} (d)6^{23}
40)	$2^5 + (\sqrt{2})^{10} =$ (a) $(\sqrt{2})^{20}$ (b)2^{10} (c) 2^6 (d)$(\sqrt{2})^{15}$
41)	If $x^3y^{-3} = 8$, then $\frac{y}{x} =$ (a)$\frac{1}{512}$ (b)$\frac{1}{8}$ (c)$\frac{1}{2}$ (d)2
42)	Twice the number $2^8 =$ (a) 2^9 (b)4^{16} (c) 2^{16} (d)2^7
43)	If $5^{x-1} = 125$, then $x =$ (a) 1 (b)2 (c) 3 (d)4
44)	If $(\frac{3}{5})^x = \frac{25}{9}$, then x = (a) 2 (b)-2 (c) 1 (d)$zero$
45)	If $(x-7)^{zero} = 1$, then $x \in$ (a) $\{7\}$ (b) R (c) $R - \{-7\}$ (d)$R - \{7\}$
46)	The expression : $\frac{3^x \times 3^x \times 3^x}{3^x + 3^x + 3^x} =$ (a) 3^{2x-1} (b)3^{1-2x} (c) 3^{x^3-3x} (d)3^{3x-x^3}

47)	$(5^{x+2} - 5^{x+1}) \div 5^x =$ (a) 5 (b)10 (c) 15 (d)20
48)	The value of the expression : $3^5 + (\sqrt{3})^{10} - 2(3)^5 =$ (a) *zero* (b)3^5 (c) $(\sqrt{3})^5$ (d)$2(3)^5$
49)	The simplest from of the expression: $\sqrt{4 \times \sqrt{16} \div \sqrt[3]{8} - 2^2} =$ (a) 2 (b)4 (c) 8 (d)16
50)	If $x = \sqrt{3}$, $y = \sqrt{5}$, then $\frac{x^8 - y^8}{x^4 + y^4} =$ (a) 4 (b)-4 (c) 16 (d)-16
51)	If $3^{x+1} = 5^{x+1}$, then x = (a) 4 (b)3 (c)-1 (d)1
52)	If $3^{2+x} = 5^{x+2}$, then 7^{x+2}= (a) 7 (b)-7 (c)-14 (d)1
53)	If $\left(\frac{2}{3}\right)^9 = \left(\frac{3}{2}\right)^x$, then x = (a)-9 (b)9 (c)32 (d)23
54)	If $2^x = \frac{1}{8}$, then x^2= (a)$\frac{1}{4}$ (b)9 (c)-9 (d)$-\frac{1}{9}$
55)	If $3^{x-1} = \sqrt[3]{\frac{1}{27}}$, then x= (a)1 (b)*zero* (c)-1 (d)-2
56)	If $2^{x-2} = 2^{1-2x}$, then x= (a)2 (b)$\frac{1}{2}$ (c)1 (d)*zero*

57)	If $3^x = 9$, then $2^x - 1$= (a)7 (b)3 (c)8 (d)5
58)	If $2^{2x} = 4$, then 2^{5x}= (a)32 (b)16 (c)10 (d)8
59)	If $0.05 \times 0.002 = 10^x$, then x = (a)-4 (b)$zero$ (c)2 (d)4
60)	If $2^{x-1} \times 3^{1-x} = \frac{9}{4}$, then x = (a)-3 (b)-1 (c)1 (d)3
61)	If $2^x = (2\sqrt{5} + 3\sqrt{2})(2\sqrt{5} - 3\sqrt{2})$, then x = (a)1 (b)-1 (c)2 (d)-2
62)	If $3^x = 7$, $7^y = 9$, then x y = (a)5 (b)2 (c)7 (d)9
63)	$5^2 + 5^2$ = ... (a) 10^2 (b) 10^4 (c) 5^4 (d) 50
64)	$3^5 \times 2^5$ = ... (a) 5^{10} (b) 6^{10} (c)6^5 (d) 6^{25}
65)	(5 a) ^{zero} = ..., a $\neq$ 0 (a) 5 (b) a (c) 5 a (d) 1
66)	3 x ^{zero} = ..., $x \neq 0$ (a) zero (b) 1 (c) 3 (d) 3 x

67)	$3^{(2^3)}$ = ... (a) 3^6 (b) 3^5 (c) 3^8 (d) 3^{32}
68)	$(5^2)^3$ = ... (a) 5^6 (b) 5^5 (c) 5^{32} (d) 5
69)	$4^3 + 4^3 + 4^3 + 4^3$ = ... (a) 4^3 (b) 4^4 (c) 4^{12} (d) 4^{81}
70)	The quarter of the number: 4^{20} = ... (a) 1^{20} (b) 4^{19} (c) 4^{16} (d) 4^5
71)	4 times the number: 2^8 = ... (a) 2^{32} (b) 8^8 (c) 2^{10} (d) 4^8
72)	Sixth the number: $2^{12} \times 3^{12}$ is = ... (a) 6^2 (b) 6^4 (c) 6^{11} (d) 6^{23}
73)	The value of: $2^5 + (\sqrt{2})^{10}$ = ... (a) 2^6 (b) 2^{10} (c) $(\sqrt{2})^{15}$ (d) $(\sqrt{2})^{20}$
74)	The value of: $2^{20} + 2^{21}$ = ... (a) 2×2^{40} (b) 2×2^{41} (c) 3×2^{20} (d) 3×2^{21}
75)	Which of the following is closest to $11^2 + 9^2$? (a) 22 + 18 (b) 211 + 29 (c) 120 + 20 (d) 120 + 80
76)	If $3^x = 4$, then 3^{-x} = ... (a) – 4 (b) $\frac{1}{4}$ (c) 4 (d) 12

78)	If $2^x = 5$, then $8^x =$ ..... (a) 5 (b) 15 (c) 25 (d) 125
79)	If $6^x = 11$, then $6^{x+1} =$ ..... (a) 12 (b) 22 (c) 66 (d) 72
80)	If $5^x = 4$, then $5^{x-1} =$ ..... (a) 1.25 (b) 0.8 (c) 0.125 (d) 0.08
81)	$0.002 \times 0.05 =$ ..... (a) 10^{-5} (b) 10^{-4} (c) 10^4 (d) 10^5
82)	$x^{m-1} \times$ ..... $= 1, x \neq 0$ (a) x^{m-1} (b) x^{-m-1} (c) x^{m+1} (d) x^{-m+1}
83)	$(\sqrt{3}+\sqrt{2})^9 (\sqrt{3}-\sqrt{2})^9 =$ ..... (a) 1 (b) $\sqrt{5}$ (c) $\sqrt{6}$ (d) 5
84)	The numerical value of the expression: $\frac{2^{2n+1} \times 5^{2n+1}}{10^{2n}}$ is ..... (a) $\frac{1}{10}$ (b) 7 (c) 10 (d) 100
85)	If $x = \frac{\sqrt{9}}{\sqrt{3}}$, then $x^{-1} =$ ..... (a) $\frac{\sqrt{3}}{3}$ (b) $\frac{\sqrt{3}}{\sqrt{2}}$ (c) $\sqrt{3}$ (d) 2
86)	If $x + y = 3, x^2 - xy + y^2 = 5$, then $x^3 + y^3 =$ ..... (a) 15 (b) 25 (c) 8 (d) 7
87)	If $x^3 - y^3 = 14, x^2 + xy + y^2 = 7$, then $x - y =$ ..... (a) 2 (b) 7 (c) 14 (d) – 2

88)	If $x^3 + y^3 = 28$, $x + y = 2$, then $x^2 - x\,y + y^2$ = ... (a)28 (b) 7 (c) 14 (d) 2
89)	If $y^3 - a = (y - 2)(y^2 + 2y + 4)$, then a = ... (a)2 (b) 4 (c) 8 (d) – 8
90)	If $x^3 - 8 = (x + a)(x^2 + 2x + 4)$, then a = ... (a)4 (b) – 4 (c) 2 (d) – 2
91)	If $x^3 + 27 = (x + 3)(x^2 + k + 9)$, then "k" equals ..... (a) $-6x$ (b) $-3x$ (c) $3x$ (d) $6x$
92)	$x^3 - k^3 = (x - k)(x^2 + 4x + k^2)$, then k = ... (a)2 (b) 4 (c) 16 (d) 64
93)	$(x - y)(x + y)(x^4 + x^2y^2 + y^4)$ = ... (a) $x^3 - y^3$ (b) $x^3 + y^3$ (c) $x^6 - y^6$ (d) $x^6 + y^6$

Choose the correct answer

1	the solution set of the equation : $x(x-3)=0$ in R is ..... ({3} , {0 , 3} , {0 , −3 } , {0})
2	$x^3+y^3=(\ldots\ldots\ldots)(x^2-xy+y^2)$ (x^2+y^2 , x^2-y^2 , $x+y$, $x-y$)
3	if the age of Gamal 5 yeasrs ago was x years , then the square of his age now = ... (x^2+5 , x^2+25 , $(x+5)^2$, $(x-5)^2$)
4	if $3^x=5$, then $3^{x+2}=$ ..... (10 , 15 , 45 , $\frac{5}{4}$)
5	$3^x=27$, then $2^x-3=$ ..... (3 , 9 , 8 , 5)
6	if the solution set of the equation : $x^2-ax=0$ in R is {0 , 5} , then $a=$ ..... (−25 , −5 , 5 , 25)
7	$2^2\times5^3=$ ..... ($\frac{1}{2}\times10^3$, 10^3 , 10^5 , 10^6)
8	$x^3-8=(x-2)(\ldots\ldots\ldots\ldots)$ (x^2-2x+4 , x^2-4x+4 , x^2+2x+4 , x^2+4x+4)
9	if $\left(\frac{5}{3}\right)^x=\frac{27}{125}$, then $x=$ ..... (−5 , 3 , 5 , −3)
10	A positive real number whose square equals its double is ..... (3 , 2 , 1 , 0)
11	if $(x+1)^2=1$, then $x\in$ ..... ({0 , 2} , {0 , −2} , {0} , ∅)
12	$3^5\times(\sqrt{3})^{10}=$ ..... (3^6 , 3^{10} , $(\sqrt{3})^{15}$, $(\sqrt{3})^2$)
13	the S.S of the equation $x^2-1=8$ in R is ..... (∅ , {3} , {−3} , {−3 , 3})
14	$(5^2)^3=$ ..... (5^{23} , 5^5 , 5^6 , 5)
15	the value of $(\sqrt{x})^{16}=x$ ..... (16 , 8 , 4 , 32)
16	$3^5\times2^5=$ ..... (5^{10} , 6^{10} , 6^5 , 6^{25})

17	if $3^x + 3^x + 3^x = 1$, then $x =$	(-1 , 0 , 1 , 2)
18	if $x^3\, y^{-3} = 8$, then $\frac{x}{y} =$	($\frac{8}{3}$, 2 , $\frac{1}{2}$, 512)
19	$x^3 + 8 = (x+2)(x^2 + a + 4)$	($2x$, $-2x$, $4x$, $-4x$)
20	$(8x^3 - 27y^3) \div (2x - 3y)$ where $2x \neq 3y$ equals ..... (a) $4x^2 + 6xy + 9y^2$ (b) $4x^2 - 6xy + 9y^2$ (c) $4x^2 - 12xy + 9y^2$ (c) $4x^2 + 12xy + 9y^2$	
21	if $6^x = 7$, then $6^{x+1} =$	(8 , 13 , 36 , 42)
22	the solution set of the equation $x^2 + 25 = 0$ in R is	($\{5, -5\}$, $\{5\}$, $\{-5\}$, $\emptyset$)
23	the solution set of the equation : $x^2 - \sqrt{3}\, x = 0$ in R is	($\{0, \sqrt{3}\}$, $\{0, -\sqrt{3}\}$, $\{0\}$, $\{\sqrt{3}\}$)
24	$4^3 + 4^3 + 4^3 + 4^3 =$	(4^3 , 4^4 , 4^{12} , 4^{81})
25	if $x + 2y = 7$, $a - b = 3$, then $b(x+2y) - a(x+2y) =$	(10 , 21 , -21 , -10)
26	if $x^3 - y^3 = 24$, $x^2 + xy + y^2 = 8$, then $x - y =$	(4 , 6 , 3 , 12)
27	if -2 is a solution for the equation $x^2 - 3x = k$, then $k =$	(-10 , ± 10 , -2 , 10)
28	if $(3)^{x+4} = 1$, then $x =$	(4 , -4 , 5 , 3)
29	one sixth the number $2^{12} \times 3^{12}$ is	(6^2 , 6^4 , 6^{11} , 6^{23})
30	$x^4 + 4 = (x^2 + 2)^2$	($+2x^2$, $-2x^2$, $-4x^2$, $+4x^2$)
31	$5^2 + 5^2 =$	(10^2 , 10^4 , 5^4 , 50)
32	$\left(\frac{\sqrt{5}}{3}\right)^{-2} =$	($\frac{9}{5}$, $\frac{-9}{5}$, $\frac{-5}{9}$, $\frac{5}{9}$)
33	if $5^x = 4$, then $5^{x-1} =$	(1.25 , 0.8 , 0.125 , 0.08)

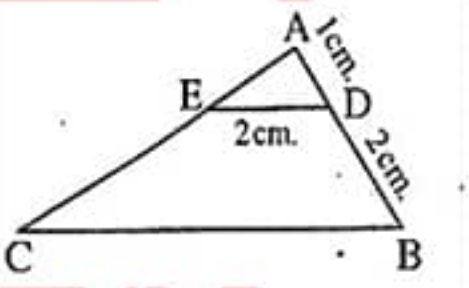
34	if $3^x = 5$, then $(27)^x =$	(9 , 25 , 125 , 729)
35	if $(x-5)^{zero} = 1$, then $x \in$	($R-\{5\}$, $R-\{-5\}$, $\{5\}$, R)
36	half of the number 2^8 is	(2^4 , 2^7 , 4 , -4)
37	if the age of Maher now is x years , then his age 3 years ago was	($x+3$, $3x$, $x-3$, $6x$)
38	if $\left(\frac{5}{3}\right)^x = \left(\frac{3}{5}\right)^2$, then $x =$	(-2 , 2 , $\frac{1}{2}$, $-\frac{1}{2}$)
39	the S.S of the equation $x^2 - x = 0$ is	($\{0,1\}$, $\{1\}$, $\{0\}$, $\emptyset$)
40	$(x-2)(x^2+2x+4) =$ ..... (a) x^3+8 (c) x^3+4 (b) x^3-8 (d) x^3+2	
41	if $7^{x-3} = 5^{x-3}$, then $x =$	(5 , 7 , 3 , 0)
42	x^4+4 can be factorized by completing square by adding	($\pm 4x$, $-x^2$, $\pm 4x^2$, $\pm 2x^2$)
43	the value of : $2^{20} + 2^{21} =$	(2×2^{40} , 2×2^{41} , 3×2^{20} , 3×2^{21})
44	if $x+y=3$, $x^2-xy+y^2=5$, then $x^3+y^3=$	(15 , 25 , 8 , 7)
45	if $x+\frac{1}{x}=3$, then $x^2+\frac{1}{x^2}=$	(9 , 11 , 7 , 1)
46	if $3^x+3^x+3^x=1$ then $x=$	(-1 , 0 , 1 , 2)
47	the S.S of the equation $x^2-3=0$ in R is	($\{3,-3\}$, $\{\sqrt{3}\}$, $\{9\}$, $\{-\sqrt{3}, \sqrt{3}\}$)
48	if x is an even natural number , then the next even natural number directly is	($x+1$, $x+2$, $2x+1$, $2x$)
49	the value of $2^5 + (\sqrt{2})^{10} =$	(2^6 , 2^{10} , $(\sqrt{2})^{15}$, $(\sqrt{2})^{20}$)

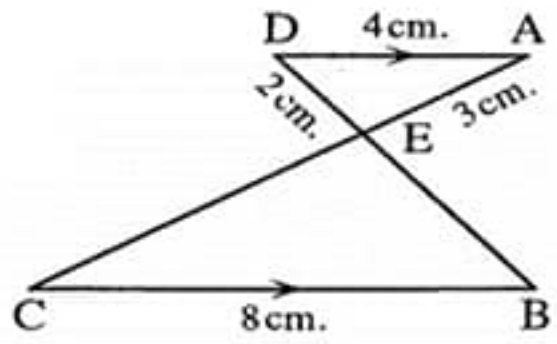
50	$(5a)^0 = \ldots\ldots\ldots, a \neq 0$	(5 , a , $5a$, 1)
51	*the quarter of* $4^{20} = \ldots\ldots\ldots$	(1^{20} , 4^{19} , 4^{16} , 4^5)
52	$3\,x^{zero} = \ldots\ldots\ldots, x \neq zero$	(*zero* , 1 , 3 , $3x$)
53	*if* $2^x = 5$ *, then* $8^x = \ldots\ldots\ldots$	($\frac{5}{8}$, 25 , 125 , $\frac{64}{125}$)
54	$3^{zero} + 3^{-1} - \left(\frac{1}{\sqrt{3}}\right)^2 = \ldots\ldots\ldots$	(3 , 1 , $\frac{1}{3}$, 0)
55	*if the age of Ahmed now is x years , then the square of his age is* ..... (x^2 , $2x$, $2x^2$, $x+2$)	
56	$(-1)^{100} + (-1)^{101} = \ldots\ldots\ldots$	(0 , -2 , 2 , 1)
57	*if* $x = \frac{\sqrt{9}}{\sqrt{3}}$ *, then* $x^{-1} = \ldots\ldots\ldots$	($\frac{\sqrt{3}}{3}$, $\frac{\sqrt{3}}{\sqrt{2}}$, $\sqrt{3}$, 2)
58	Three times the square of the number x *is* ..... ($(3x)^2$, x^2+3 , $3x^2$, $\frac{x^2}{3}$)	
59	$x + y = 7$ *and* $a - 2b = 4$ *, then the numerical value of the exprseeion* $a(x+y) - 2b(x+y) = \ldots\ldots\ldots$	
60	*if* $7^{x-3} = 5^{x-3}$ *, then* $x = \ldots\ldots\ldots$	(5 , 7 , 3 , 0)
61	*if* $\frac{2x}{5} = 6$ *, then* $x - 5 = \ldots\ldots\ldots$	
62	*if* $(x-2)^0 = 1$ *, then* $x \neq \ldots\ldots\ldots$	
63	*fifths of the number* 5^{20} *is*	
64	*if* $9^{n-1} = \frac{1}{81}$ *, then* $n = \ldots\ldots\ldots$	
65	*If a real number is added to its square the result will be* 12 *, find this number*	
66	Twice the square of the number x *is*	
67	*if* $2^x + 2^x = 1$ *, then* $x = \ldots\ldots\ldots$	

Choose the correct answer

1	if two triangles are similar , then the lengths of the corresponding sides are ..... (congruent , equal , proportional , parallel)
2	if $\Delta ABC \sim \Delta XYZ$, $AB = 5\ cm$, $XY = 10\ cm$ and $YZ = 8\ cm$, then $BC =$ ..... cm (3 , 4 , 5 , 6)
3	the area of the square whose side length $4\ cm$ = ... cm^2 (4 , 16 , 8 , 1)
4	the quadrilateral whose area half square of its diagonal length is ..... (parallelogram , rectangle , rhombus , square)
5	Number of axis of symmetry of isosceles trapezium = ... (1 , 2 , 3 , 4)
6	atrapezium whose middle base length is $12\ cm$ and its height = $3\ dm$ then its area = ... cm^2 (360 , 15 , 63 , 36)
7	two similar rectangle , the length of the first rectangle is $5\ cm$ and of the second one is $10\ cm$, then the ratio between the perimeter of the firt : the perimeter of the second equals ..... (1 : 5 , 1 : 3 , 1 : 2 , 2 : 1)
8	if the perimeter of a rhombus is $52\ cm$ and the length of one of its diagonals is $10\ cm$, then its area = ... cm^2 (130 , 120 , 62 , 30)
9	the two base angles of the isosceles trapezium are ..... (congruent , complementary , supplementary , parallel)
10	A square of area $18\ cm^2$. the length of its diagonal = ... cm (9 , 36 , 6 , 12)
11	if the ratio of enlargment between two similar triangles = 1 , then the two triangles are ..... (congruent , different , right angled , equilateral)

12	two similar polygons in which the ratio between the lengths of two corresponding sides is 1 : 3 , if the perimeter of the smallest polygon is 20 cm , then the perimeter of the greatest one = ...cm (20 , 40 , 60 , 10)
13	a rhombus whose diagonals lengths are 6cm , 10 cm , has area ..... cm^2 (60 , 30 , 15 , 10)
14	the ratio between the lengths of two corresponding sides of two similar polygons is 3 : 5 , then the ratio between their perimeters is ..... (2 : 5 , 5 : 3 , 3 : 5 , 1 : 2)
15	if the area of a trapezium is 100 cm^2 and its height is 5 cm , then the length of its middle base = ... cm (20 , 30 , 40 , 50)
16	if $\Delta ABC \sim \Delta XYZ$, $m(\angle B) = 50^\circ$, then $m(\angle Y) =$ .....° (30 , 40 , 50 , 60)
17	the diagonals of an isosceles trapezium ..... (congruent , perpendicular , bisect each other , parallel)
18	the ratio between the lengths of two corresponding sides in two similar triangles is equal to ..... , then the two triangles are congruent (1 , 2 , 0.5 , 0.25)
19	if $\Delta ABC \sim \Delta DEF$ and $m(\angle B) + m(\angle C) = 70^\circ$, then $m(\angle D) =$ .....° (70 , 90 , 110 , 180)
20	A trapezium whose middle base length is 8 cm , then the lengths of the parallel bases may be ..... cm (3 , 5 , 6 , 10 , 4 , 6 , 4 , 4)
21	the ratio between the lengths of corresponding sides of two similar triangles is 3 : 5 , if the perimeter of the greater triangle is 60 cm , then the perimeter of the smaller triangle is ..... cm (24 , 36 , 40 , 100)
22	if $\Delta ABC \sim \Delta XYZ$, then $m(\angle ACB) = m(\angle \ldots\ldots)$ (XZY , ZYX , XYZ , YXZ)

23	the area of square of diagonal length 6 cm is ..... cm^2 (18 , 36 , 12 , 6)
24	if the ratio of enlargment between two similar triangles equals ..... then the two triangles are congruent (1 , 2 , 0.5 , 0.25)
25	if the area of a trapezium is 40 cm^2 and the lengths of its two parallel bases are 7 cm , 9 cm , then its height is ..... cm. (10 , 7 , 8 , 5)
26	the area of a rhombus is 24 cm^2 and the length of one of its diagonals is 6 cm , then the length of the other diagonal = ... cm (4 , 8 , 10 , 12)
27	A square of perimeter 20 cm , then its area equals ..... cm^2 (20 , 25 , 50 , 100)
28	if $\Delta ABC \sim \Delta DEO$, $AB = \frac{1}{4} DE$, then the perimeter of ΔABC = ... the perimeter of ΔDEO (4 , 2 , $\frac{1}{4}$, $\frac{1}{2}$)
29	if two polygons are similar and the ratio between the lengths of two corresponding sides is 1 : 3 and the perimeter of the smaller polygon is 15 cm , then the perimeter of the greater polygon is ..... (30 , 45 , 60 , 75)
30	if $\Delta ADE \sim \Delta ABC$, then the length of B C = ... Cm (a) 3 (c) 6 (b) 4 (d) 8 
31	the area of the square whose diagonal length is 8 cm equals ..... cm^2 (8 , 16 , 32 , 64)
32	the trapezium in which the lengths of the two parallel bases are 6 cm and 14 cm and its height is 5 cm , then its area = ... cm^2 (100 , 24 , 40 , 50)
33	If the perimeter of a rhombus is 24 cm. and its area = 30 cm^2 , then its height = ... cm (4 , 5 , 6 , 12)

34	If the perimeter of a rhombus is $52\ cm$. And the length of one of its diagonals is $10\ cm$. Then its area = ... cm^2 (130 , 120 , 62 , 30)
35	If the area of a trapezium is $75\ cm^2$. And the length of its middle base is $15\ cm$. Then its height ..... Cm.
36	*if* $\Delta AED \sim \Delta CEB$ *then the perimeter of* $\Delta EBC =$ ..... 
	if $\Delta ABC \sim \Delta ADE$, $AE = 6\ cm$, $AD = 7\ cm$ *and* $BE = 8\ cm$. *Find* (1) DC (2) $\frac{DE}{BC}$